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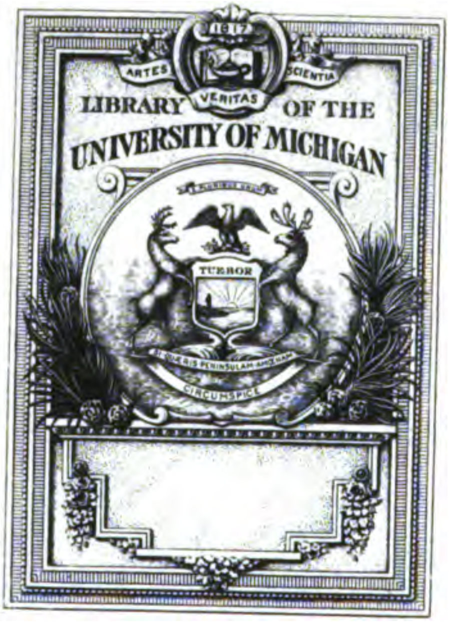
Dr. Chase's RECIPES

R. G. ADAMS



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DR. CHASE'S RECIPES
OR
Information for Everybody

AN INVALUABLE COLLECTION

—OF—

PRACTICAL RECIPES

—FOR—

Merchants, Grocers, Manufacturers, Physicians, Druggists,
Tanners, Shoemakers and Harness Makers, Painters,
Jewelers, Blacksmiths, Miners, Gunsmiths,
Furriers, Barbers, Bakers, Dyers,
Renovators, Farmers and
Families Generally

To which have been added

A Rational Treatment of Pleurisy, Inflamation of the Lungs
and other Inflamatory Diseases, and also for General
Female Weakness and Irregularities.

ALL ARRANGED IN THEIR APPROPRIATE
DEPARTMENTS BY

A. W. CHASE, M. D.

Revised and Enlarged by
WM. WESLEY COOK, A. M., M. D.,
Professor of Physiological Medicine in the National Medical
University, Chicago.

WITH ADDITIONS TO MANY DEPARTMENTS BY THE PUBLISHERS

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PUBLISHERS

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3-31-28

PUBLISHERS' PREFACE TO THE REVISED EDITION.

Nearly every one in the land has heard of Dr. Chase's Book of Recipes. It is almost as standard as the Dictionary, and an indispensable possession of every well governed household, kept in a convenient place for ready reference. As it embraces almost everything in the way of useful information and is written in plain language and systematically arranged, it has become the most highly valued book designed for general use. Young and old consult it, and rich and poor, educated and uneducated persons of all vocations and walks in life make almost daily use of it for various purposes.

On the farm this book is an authority, and from Maine to California and from Oregon to Florida it is quoted and its directions followed. So true is its information and so wide is its scope that it serves every purpose of a library to many who cannot afford to invest money in various technical books.

By the mechanic, Dr. Chase's Book of Recipes has long been held in the highest favor. It is a common thing to find it on the shelf or on the desk or on the closet shelf of the carpenter or blacksmith or other skilled workman. Such men refer to it for the information they so often need to help them in some perplexing problem of their trade. In the kitchen it is usually a well-worn book, depended upon as a guide in cooking and cleaning and other various household duties. No cook book or household guide was ever devised that has had such a sale as this one; and no other book has been so universally adopted and has so long held the confidence of housewives. Cook books come and cook books go, but Dr. Chase's book stays on forever. When an emergency arises it is always "Go get Dr. Chase's book," or "See what Dr. Chase's book says to do." It is a sort of all-wise counselor in times of trouble, filled with just such advice as is most needed.

As a family medical guide, Dr. Chase's Book of Recipes is famous; and its fame extends almost everywhere. Families have for many years depended upon it to prevent disease and save doctors' bills, and many of the most prominent physicians in communities frequently consult it for suggestions to aid them in their practice. If there were no other departments in this most excellent book, the medical department alone would place it among the most useful and valuable household works. The descriptions of diseases and their symptoms and the directions given are so plain and simple that anyone can understand them; and yet they are so comprehensive that parents are usually enabled to diagnose their children's troubles and administer the proper remedies long before the doctor's services can be secured; and almost universally when the doctor does arrive he declares: "You have done just the right thing." Such a safeguard as this book in the family gives a sense of security not otherwise obtainable. There are many persons now living who owe their lives to promptly following its advice and who look upon the book with gratitude and almost devotion. It has been the right thing in the right place to tens of thousands of families. For tradesmen, Dr. Chase's Book of Recipes has been a worthy adviser for many years. Its business suggestions, interest tables and hundreds of hints and suggestions for conducting business on methodical and economical lines have been worth many thousands of dollars to those who have availed themselves of them.

Taken altogether, there are no books in existence dealing with the same classes of topics and embracing such practical advice that can collectively approach Dr. Chase's Book of Recipes in popularity and usefulness. This is conceded by booksellers and agents everywhere, who have been amazed at the enormous sales this book has had and continues to have.

Another phase of the value of this book is the fact that it has been the means of aiding thousands of young men and women to gain an academic and collegiate education. Its popularity and ready sale being recognized, these young men and women travel the country during vacations as agents for the publisher, selling and delivering copies of the book everywhere and thus securing means to carry them through their courses of study. It is a peculiarity of the book that those who sell it are always welcome at the homes, for nearly all persons have heard of it and made up their minds to secure a copy at the first opportunity; or those who have it either desire a new copy of the last edition or entertain a most kindly feeling toward anyone who is selling the book, which they regard as a family friend.

In all these ways Dr. Chase's Book of Recipes holds a unique position in the world of books. No other book ever written has been able to obtain such a hold upon public confidence and esteem, and the record of the past makes it impossible for imitators to hope to meet with such approval and success. It is no wonder that the publishers are pleased at the privilege of issuing new editions of this book and that they are anxious to improve it to the best of their ability. Times change, and new facts and experiences are constantly accumulating, necessitating the revision and enlargement of scientific books, encyclopoedias, dictionaries, etc., to keep abreast of the times. Dr. Chase's Book of Recipes is no exception to standard works. It is being constantly revised to meet the demand for the latest information on the topics which it embraces, and no effort or expense is spared to keep it strictly up to date.

Beside the original matter of the first issue of this famous book, the present edition contains an amount of new information that would of itself constitute a most valuable work of reference.

The additions made by the publishers to the various departments include the latest and most trustworthy recipes. They are thoroughly reliable and have been tested by persons who have found them of practical value. Owners of horses will find the appendix to the Farrier's department, the most complete work on horse management and training ever published. The methods given are those of the world's most famous horse trainer, adopted by horsemen everywhere.

Under the titles of miscellaneous recipes and suggestions and home made contrivances many most valuable things will be found, some of them being labor saving devices, and any one of them worth the price of the book.

Especial attention is called to the additions to the medical department. These are compiled by eminent authorities and embrace practical, common-sense information on most important topics concerning disease, health and longevity. The special articles have been written with great care and will be appreciated by thinking people. The formulas of well known preparations are interesting and valuable and by consulting them those who use proprietary medicines may have an idea of what they are taking. They also serve as a guide in the preparation of new compounds. As a book of formulas alone Dr. Chase's Book of Recipes would have an exceptional value.

Taken altogether, with its original fund of information and the new additions compiled from expert sources, what more useful book could possibly be offered to the public than this new and revised edition of Dr. Chase's Book of Recipes? The publishers appreciate the fame that the original book has so long maintained and realize that its future, on account of its present great improvements, will greatly exceed the marvelous record of the past. Every effort has been made to render this work complete and it is with confidence that this present edition is issued.

THE PUBLISHERS.

AUTHOR'S PREFACE

In bringing a permanent work, or one that is designed so to be, before the public, it is expected of the Author that he give his reasons for such publication. If the reasons are founded in truth, the people, consequently seeing its necessity, will appreciate its advantages and encourage the Author by quick and extensive purchases, they alone being the judges. Then:

First.—Much of the information contained in "Dr. Chase's Recipes; or Information for Everybody" is adapted to everyday use and has never before been published.

Second.—The Author, after having carried on the drug and grocery business for a number of years, read medicine and graduated as a physician in order to qualify himself for the work he was undertaking. At this period in his life he had reached the age of thirty-eight years, and in addition to the very thorough preparation which he underwent for the profession, he brought to it the results of a longer and more varied experience, and a maturer outlook than is usual. Having been familiar with some of the recipes more than twenty years, he began compiling them in a small pamphlet. the success of which was so great as to immediately demand a more important and extensive work. After several years in the practice of medicine, adding all the while to his stock of experience and material, the first regular edition of "Dr. Chase's Recipes or Information for Everybody" was issued, after which the Author spent many years traveling between the Atlantic seaboard and the middle-western states, selling the work and prescribing. His travels brought him in contact with all classes of professional and business men, mechanics, farmers, etc., enabling him to obtain from them many additional items. Always having had his notebook with him, whenever a prescription or recipe came to his attention or a remark was made that had a practical bearing, it was noted and at the first opportunity tested, then, if good, written out in plain language expressly for the next edition of this work. In this way this mass of information has been collected, and ought to take away an objection which some persons have raised: "It is too much for one man to know!" because they did not realize that the work had been made up from others as well as the Author's actual, everyday experience, instead of from untried books. From the nature of the recipes one has occasionally found its way into some of the earlier editions which has needed revision or to be dropped entirely. With each succeeding edition the various departments have been revised and enlarged until the work represents the culmination of our expectations and desires.

Third.—Many of the Recipe books published are very large, containing much useless matter, only to increase the number, consequently costing too much—this one contains only about eight hundred recipes, upon only about four hundred different subjects, all of which are valuable in daily, practical life, and at a very reasonable price—many of them are without arrangement—this one is arranged in regular Departments, all of a class being together—many of them are without remark or explanation—this one is fully explained, and accompanied with remarks upon the various subjects introduced by the Recipes under consideration—those remarks, explanations and suggestions accompanying the Recipes, are a special feature of this work, making it worth double its cost as a reading book, even if there was not a prescription in it.

Fourth.—The remarks and explanations are in large type whilst the prescriptive and descriptive parts are in a little smaller type, which enables any one to see at a glance just what they wish to find.

Fifth.—It is a well known fact that many unprincipled persons go around "gulling" the people by selling single Recipes for exorbitant prices. The Author found a thing, calling himself a man, in Battle Creek, Mich., selling a Washing-Fluid Recipe for two dollars, which he obtained of some; but if he could not obtain that, he would take fifty cents, or any other sum between them. A merchant gave a horse for the "White Cement" Recipe. The late Mr. Andrews, of Detroit, Mich., gave three hundred dollars for a Recipe, now improved and in this work, to cure a bone spavin upon a race mare of his. He removed the spavin with it and won the anticipated wager with her. The Author has, himself, paid from twenty-five to fifty and seventy-five cents, and one to two, three, five and eight dollars for single items, or Recipes, hoping thereby to improve his work, but often finding that he had much better ideas already embodied therein.

The amount paid for information in this work, and for testing by experiment, together with traveling expenses and cuts used in illustrating it, has reached many thousands of dollars, and all for the purpose of making a book worthy to be found in "Everybody's" library, and to prevent such extortions in the price of Recipes. Yet any single Recipe in the work which a person may wish to use, will often be found worth many times the price of the book, perhaps save the lives of those you dearly love, by having at hand the necessary information enabling you to immediately apply the means within your reach, instead of giving time for disease to strengthen, whilst sending, perhaps miles, for a physician. Much pain and suffering also, will often be saved or avoided, besides the satisfaction of knowing how many things are made which you are constantly using, and also being able to avoid many things which you certainly would avoid if you knew how they were made.

Sixth.—It will be observed that we have introduced a number of Recipes upon some of the subjects; this adapts the work to all circumstances and places; the reason for it is this: we have become acquainted with them in our practice and journeyings, and know that when the articles cannot be obtained for one way, they may be for some other way; as also that one prescription is better for some than for other persons; therefore, we give the variety that all may be benefited as much as possible. For instance, there are twenty different prescriptions for different diseases and conditions of the eye; there are also a dozen different liniments, etc., etc., yet the Author feels well assured that the most perfect satisfaction will be experienced in them as a whole. And although it could not be expected that special advantages of particular Recipes could be pointed out to any great extent, yet the Author must be indulged in referring to a few in the various Departments. All, or nearly all, Merchants and Grocers, as also most Families, will be more or less benefited by the directions for making or preserving butter, preserving eggs or fruit, computing interest, making vinegar, and keeping cider palatable, etc. In ague sections of country, none should be without the information on this subject; and, in fact, there is not a medical subject introduced but what will be found more or less valuable to every one. Even Physicians will be more than compensated in its perusal; whilst Consumptive, Dyspeptic, Rheumatic and Fever patients ought, by all means, to avail themselves of the advantages here pointed out. The treatment in Female Debility, and the observations on the Changes in female life are such that every one of them over thirteen or fourteen years of age should not be without this work. The directions in Pleurisy and other Inflammatory Diseases cannot fail to benefit every family into whose hands the book shall fall.

The Good Samaritan Liniment, we do not believe, has its equal in the world, for common uses, whilst there are a number of other liniments equally well adapted to particular cases. And we would not undertake to raise a family of children without our Whooping Cough Syrup and Croup Remedies, knowing their value as we do, if it cost a hundred dollars to obtain them. Tanners and Shoemakers, Painters and Blacksmiths, Tinners and Gunsmiths, Cabinet Makers, Barbers and Bakers, will find in their various departments more than enough in single recipes to compensate them for the expense of the work; and Farriers and Farmers who deal in horses and cattle will often find that department to save a hundred times its cost in single cases of disease.

A gentleman recently called at my house for one of the books, saying: "I have come ten miles out of my way to get it, for I stayed over night with a farmer who had one and had been benefited more than $20, in curing a horse by its directions." A gentleman near this city says he had paid out dollars after dollars to cure a horse of spavin, without benefit, as directed by other books of recipes; but a few shillings, as directed by this, cured the horse. Another gentleman recently said to me: "Your Eye Water is worth more than $20." I could fill pages with similar statements which have come to my knowledge since I commenced the publication of this work, but must be content by asking all to look over our references, which have been voluntarily accumulating during the years in which the work has been growing up to its present size and perfection; and the position in society of most of the persons making these statements is such, many of whom are entire strangers to the Author and to each other, that any person can see that no possible complicity could exist between us, even if we desired it.

Families will find in the Baking, Cooking, Coloring and miscellaneous departments all they need without the aid of any other "Cook Book;" and the Washing Fluid which we have used at every washing for a number of years is worth to every family ten times the cost of this book yearly, saving both in labor and wear of clothes.

Seventh.—Many of the articles can be gathered from garden, fields or woods, and the others will always be found with Druggists, and most of the preparations will cost only from one-half to as low as one-sixteenth as much as to purchase them already made; and the only certainty nowadays of having a good article is to make it yourself.

Finally—There is one of two things about this book; it is the biggest humbug of the day or it is the best work of the kind published in the English language. If a careful perusal does not satisfy all that it is not the first, but that it is not the latter, then will the Author be willing to acknowledge that testing, experimenting, labor, travel and study are of no account in qualifying a man for such a work, especially when that work has been the long cherished object of his life for a lasting benefit to his fellow creatures, saving them from extortion in buying single recipes, and also giving them a reliable work for every emergency, more than for his own pecuniary benefit. Were it not so, I should have kept the work smaller as heretofore. For example, the eighth edition of only two hundred and twenty-four pages had a large sale at a price about the same as that of succeeding editions. But in the succeeding editions, especially in the present one, the purchaser gets the value of the purchase price in reading matter alone, besides the most reliable practical information by which he will save not only dollars and cents, but relieve suffering and prolong life. It is, in fact, a perfect mass of the most valuable methods of accomplishing the things spoken of; an Encyclopedia upon the various branches of science, economics and art treated of in the work. It is indeed, young and old, "Everybody's" book and something which no family can afford to be without. And neither the "Taxes" nor "Times" should be for a moment argued against the purchase of so valuable a work. Until more recent years the book was sold entirely by traveling agents. Now it is thoroughly established in those channels of trade which permit more people to learn of its merits and acquire it.

Some persons object to buying a book of recipes, as they are constantly receiving so many in the newspapers of the day; but if they had all that this book contains, scattered through a number of years of accumulated papers, it would be worth more than the price of this work to have them gathered together, carefully arranged in their appropriate departments, with an alphabetical index, and handsomely bound, besides the advantage of their having passed under the Author's carefully pruning and grafting hand.

"To uproot error and do good should be the first and highest aspiration of every intelligent being. He who labors to promote the physical perfection of his race—he who strives to make mankind intelligent, healthy and happy—cannot fail to have reflected on his own soul the benign smiles of those whom he has been the instrument of benefiting." The Author has received too many expressions of gratitude, thankfulness, and favor, in regard to the value of "Dr. Chase's Recipes; or Information for Everybody," to doubt in the least, the truth of the foregoing quotation; and trusts that the following quotation may not be set down to "Egotism" or "Bigotry," when he gives it as the governing reason for the continued and permanent publication of the work:

"I live to *learn* their story, who suffered for my sake;
To emulate their glory, and follow in their wake;
Bards, patriots, martyrs, sages, and noble of all ages,
Whose deeds crown History's pages, and Time's great volume make.

"I live for those who love me, for those who know me true,
For the heaven that smiles above me, and awaits my spirit too;
For the cause that lacks assistance, for the wrong that needs resistance,
For the future in the distance, and the *good* that I can do."

May these reasons speedily become the governing principles throughout the world, especially with all those who have taken upon themselves the vows of our "Holy Religion"; knowing that it is to those only who begin to love God, and right actions, here, with whom the glories of Heaven shall ever begin. Were they thus heeded, we should no longer need corroborating testimony to our statments. Now, however, we are obliged to array every point before the people, as a mirror, that they may judge understandingly, even in matters of the most vital importance to themselves; consequently we must be excused for this lengthy Preface, Explanatory Index and extended References following it. Yet, that there are some who will let the work go by them as one of the "Humbugs of the day," notwithstanding all that has or might be said, we have no doubt; but we beg to refer such to the statement amongst our References, of the Rev. C. P. Nash, of Muskegon, Mich., who although he allowed it thus to pass him, could not rest satisfied when he saw the reliability of the work purchased by his less incredulous neighbors; then if you will, let it go by; but it is hoped that all purchasers may have sufficient confidence in the work not to allow it to lay idle; for, that the designed and greatest possible amount of good shall be accomplished by it, it is only necessary that it should be generally introduced and daily used, is the positive knowledge of the AUTHOR.

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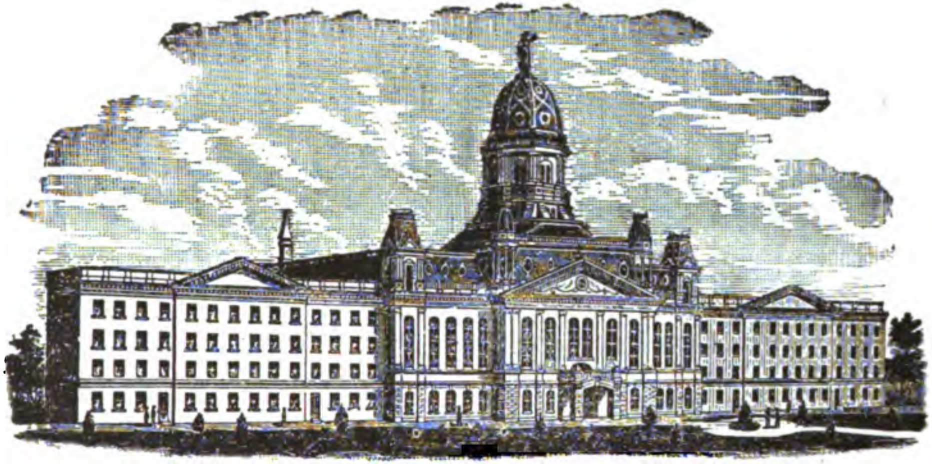

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REFERENCES.

Extracts from Certificates and Diplomas in the Doctor's Possession, Connected with His Study of Medicine.

"I hereby certify that A. W. Chase has prosecuted the Study of Medicine under my instruction during the term of two years and sustains a good moral character.

[Signed.] O. B. REED, Physician.
Belle River, Mich."

"University of Michigan,
College of Medicine and Surgery.

This certifies that A. W. Chase has attended a full course of lectures in this institution.

[Signed.] SILAS H. DOUGLAS, Dean.
University of Michigan, Ann Arbor."

Eclectic Medical Institute, Cincinnati, Ohio.

Know All Men by these Presents, That A. W. Chase has sustained an honorable examination before the faculty of this Institute, on all the departments of Medical Science, etc. * * Wherefore we, the Trustees and Faculty, * * * by the authority vested in us by the Legislature of the State of Ohio, do confer on him the Degree of Doctor of Medicine.

WM. B. PIERCE, President.
W. T. HURLBERT, Vice President.
Jas. G. Henshall, Secretary.

Signed also by seven Professors, embracing the names of Scudder, Bickley, Freeman, Newton, Baldridge, Jones and Saunders.

[Seal.]

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The following statements are given by my neighbors, to whom I had sent the eighth edition of my "Recipes," asking their opinions of its value for the people, most of whom had previously purchased earlier editions of the work, and several of them used many of the Recipes; and surely their position in society must place their statements above all suspicion of complicity with the author in palming off a worthless book; but are designed to benefit the people by increasing the spread of genuine practical information.

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Dr. A. W. Chase, of this city, has placed on our table a copy of his "Recipes, or Information for Everybody." Beginning with a small pamphlet, the Doctor has swelled his work to a bound volume of about 600 pages, an evidence that his labors are appreciated. The volume furnishes many recipes and much information of real practical value.—Michigan Argus, Ann Arbor.

Dr. Chase's Recipes.—The latest edition of Dr. Chase's Recipes has been recently published, revised, illustrated and enlarged—Comprising a very large collection of practical information for business men, mechanics, artists, farmers and for families generally. The recipes are accompanied with explanations and comments which greatly increase the value of the work. It is a handsomely bound volume.—Ann Arbor Journal.

Dr. Chase, of Ann Arbor, has favored us with a copy of his book of recipes, which has, in an unprecedented short time, run into numerous editions, showing its popularity wherever it has been introduced. It contains "information for everybody," for making all sorts of things. It is a valuable work for everyone—many single recipes being worth much more than the cost of the book. Reverend Mr. Frazer, the gentlemanly agent for the work, is now in the city and will call upon our citizens giving them an opportunity to secure a copy. The work is neatly printed, elegantly bound, and undoubtedly embodies more useful information than any work of the kind now before the public. A better investment cannot be made by any one.—Grand Rapids Eagle.

Dr. Chase, of Ann Arbor, has favored us with a copy of Recipes which he has published, * * * who claims that they have been made up from his own and others' every day experience. There are certainly a great many useful recipes in this work that might be found to richly repay its cost to any family.—Michigan Farmer, Detroit.

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H. Fish, Captain of Steamer Sam Ward.

Opinions of the People—Strangers

Rev. C. P. Nash, of Muskegon, Mich., writes Dr. Chase: **Dear Sir**—Some time since one of your agents canvassed our town for your "Book of Recipes," but thinking it perhaps one of the humbugs of the day I neglected my opportunity to procure one. The books, however, were sold to our neighbors about us, and my wife borrowed one in order to test a few of its Recipes. She found them all genuine so far as she tried them, and now very much regrets that we did not procure one; she considers them invaluable. The object of this note is to inquire whether you have the book for sale and whether we can procure one by sending you the necessary funds. If so, will send by return of mail, upon receipt of your answer. If not, can you—and will you be so kind as to inform us where and how we can procure one?

P. S.—Enclosed please find a directed and prepaid envelope for your reply.

Frederick Bues, Vinegar Manufacturer of Freeport, Ill., says: Dr. Chase's plan of making Vinegar is purely scientific, and I am making it with entire success.

J. M. Chase, Caneadea, N. Y., says: Your Vinegar is all right. More than forty men tasted it last Saturday and they, to a man, say it is the best and pleasantest they ever tasted.

J. Clark, of Conneautville, Pa., said to me he had made $500 in four months from the Vinegar Recipe.

L. Weber, Grocer of Crestline, O., says: I purchased Dr. Chase's book about a year ago, and have made and sold the Vinegar at a profit of about $40 on nine barrels. These statements refer to the "Vinegar in Three Days Without Drugs."

H. W. Lord and B. Fox, Grocers of Pontiac, Mich., say: We have kept eggs two years by Dr. Chase's process, as good as when put down.

L. Howard, Hotel Keeper (of the firm of Kimball & Howard), Waverly House, Elgin, Ill., says: We used eggs in June of this year which were laid down in May of last year, by a plan just the same as Dr. Chase's and they were just as good as fresh eggs, and as clean and nice in every way.

Wm. Buss, of the firm of Robinson & Co., Grocers, of Erie, Pa., says: I have tried a recipe similar to Dr. Chase's egg preserving recipe, for several years, with perfect success; and freely recommend it to any one wishing to deal in eggs.

John A. Vanhorn, Merchant, of Marshall, Mich., says: I have been acquainted with Dr. Chase's plan of keeping eggs for five years, and know that it will keep them as nice as fresh eggs.

T. L. Stevens, Merchant, of Paw Paw, Mich., says that he is acquainted with the same thing and knows that it is good.

Chapel & Graves, Grocers, at Ottawa, Ill., say, they paid $10 for the Egg Preserving recipe. I know two men, one of which paid $100 and the other $125 for a part only of the Vinegar recipes.

Howbret & Failor, Druggists, of Bucyrus, Ohio, say: Dr. Chase's Red Ink is superior to Harrison's Columbian Ink, and also that his Burning Fluid can have no superior.

Miller & Davis, Bankers, Ann Arbor, Mich: We have tried Dr. Chase's Common Ink and find it a good article.

Robert Heany, Jr., Druggist, of Hendrysburg, O., says: I have tried several of your recipes and so far find them good. The Eye-Water gives good satisfaction, the Good Samaritan takes the place of all other Liniments in the shop; the Green Mountain Salve takes well for plasters, and Mead's Sovereign Ointment is doing for me what no other medicine has done—it is curing a sore on my back which has baffled all applications for more than two years; one doctor called it Tetter, another Erysipelas. It began like a Ring Worm and slowly spread with the most intolerable itching. It is now nearly well, with only two weeks' use of the ointment.

Dr. A. S. Witter, Eclectic Physician, of Battle Creek, Mich., says: Either of Dr. Chase's preparations for the Ague is worth double what he asks for the whole list of recipes.

Prof. A. H. Platt, M. D., of Antioch College, Yellow Springs, O., says: To the Medical Profession: This certifies that the recipe in "Dr. Chase's Collection," for the cure of Uterine Hemorrhage, is original with me and has been used in my practice for nearly twenty years without a single failure.

L. S. Hodgkins, of Reading, Mich., says: I have cured my wife of Cancer of four years standing with one of Dr. Chase's Cancer Cures. I know it has cured others also.

W. J. Cook, M. D., of Mendota, Ill., says: I have examined Dr. Chase's recipes and find two or three worth more than he asks for the whole collection.

T. W. Church, Dentist, of Coldwater, Mich., says: I have been acquainted with Dr. Chase and his Book of Recipes for about two years; all I have tested are found to be practical, and his prescription for my father, in paralysis, was found to be more effectual in giving relief than that of any other physician.

The Editor of the Ann Arbor Local News says: We have thoroughly examined the work published by A. W. Chase, M. D., entitled, "Dr. Chase's Recipes," and believe it to be a most valuable book for everybody. There is not, in our opinion, a single recipe contained in it that is not of great practical use.

N. S. Reed, Harness Maker, of Mansfield, Ohio, says: I have used Dr. Chase's Varnish Blacking for Harness over three years and say it is the best I ever used.

J. & D. Minich, Tanners, of Bucyrus, Ohio, say: We are using Dr. Chase's Tanning and Finishing Recipes with good satisfaction.

Mrs. Morris, of Lima, near Ann Arbor, Mich., says: I am using Dr. Chase's Washing Fluid, and have found it a very valuable recipe; and I would not do a washing without its aid for half the price of the book, weekly.

Stephen Allen, of Adrian, Mich., says: We have used A. W. Chase's Washing Fluid for two years, and my wife says she would not do without it for $10 a year, and it does not injure the clothes but saves all bleaching.

Jacob Schoen, of East Saginaw, Mich., says: The recipe of Dr. Chase's Washing Fluid is genuine and like the same which I manufactured and sold for nine years in Vienna, the capital of Austria in Europe.

H. W. Donnelly, Postmaster of Parma, Mich., says: My family have used a preparation in washing for ten years, similar to Dr. Chase's; and we know it to be practical and valuable. He said to a farmer, who asked his opinion of the book, "Buy one," says he, "that recipe alone is worth the whole price, a dozen times."

The editor of the Country Gentleman says of the Washing Fluid, from several years' experience, that clothes not only wash easier but look better and last fully as long as when washed in the old way."

The Author knows that shirts will last twice as long, for the board rubbing wears them out faster than body wear, and as two-thirds of that rubbing is saved, the wear is of course saved.

Gideon Howell, of Oramel, N. Y., says: I have drank cider two years old (kept by one of Dr. Chase's recipes) as good as when put up, and did not cost ¼ of a cent per barrel to prepare it.

Sheldon Bebee, a farmer of Cary, Ohio, says: I put away cider in November, by one of Dr. Chase's recipes to preserve cider, and it is now, in March, as good as when first made.

Messrs. J. W. Bell & P. Mower, Blacksmiths, of New Vienna, Ohio, say: Dr. A. W. Chase: Dear Sir—We have tried your process for re-cutting files and are happy to say to you that it works well, and we desire you also to send us the recipe for welding Cast-Steel without borax, which was forgotten when we obtained the other. [I sold to them before these recipes were printed in the book.]

John Miser, Blacksmith, of Washington, Ohio, says: Dr. Chase tried his file Cutting Process in my shop last night and I am satisfied that it is a good thing, and we have purchased his book.

Wm. Russell, Blacksmith, of Princeton, Ind., says: I purchased Dr. Chase's book of recipes this afternoon and have tested the recipe for tempering mill-picks to my perfect satisfaction, and also of the miller who used them. They cut glass also very nicely.

J. Kinneman, Miller in Union Mills, Union, Pa., says: Mr. Todd, Blacksmith, of this place, put one dollar in my hands to be given to Dr. Chase if his Mill-pick Tempering Recipe gave satisfaction upon test and the Doctor gained the money.

G. C. Schofield, of Conneautville, Pa., says: After using Wood's Hair Restorative without benefit I have now a good head of hair from using a Restorative similar to Dr. Chase's, and I know his to be a superior article.

O. B. Bangs, of Napoleon, Mich., says: Dr. Chase. Dear Sir—Allow me to say by using your Hair Restorative once a day for two weeks gave me a beautiful dark head of hair in place of a silver gray which had been my companion for years, and although I have not now used it in four months. yet my hair retains its beautiful dark appearance, and is soft and pliable as in youth; if it was used once a day for two weeks, and then two or three days only every two months, no gray hair would ever appear. The expense of it is so very trifling, also, no one would feel it, as 2½ pints costs only from 25 to 30 cents.

T. Shaw, Cabinet Maker, of Westfield, N. Y., says: I have used Dr. Chase's preparation in finishing furniture, about five years, and know it is good, and better than any other thing I have used in 35 years.

Jonathan Higgins, Farmer of West Union, Adams Co., Ohio, says: I have used Dr. Chase's treatment for cholic in horses for the last 12 to 15 years with perfect success, and also on myself with as perfect satisfaction; and my wife says she likes Mrs. Chase's Buckwheat Short-cake better than the griddle-cake, and it is not half the trouble to make it.

A. French, of Jackson, Ohio, says: Having cured many horses of Spavin and Bighead with a preparation similar to Dr. Chase's Ring-bone and Spavin Cure, I am free to say that this recipe is worth more than the whole price of the book to all who are dealing in horses. It also cures curbs, callouses, inflammations, etc., etc., and this I know from twenty years' experience in staging.

J. M. Lowry, of Pomeroy, Ohio, says: I have successfully treated more than twenty cases of bots with Dr. Chase's remedy for that disease.

W. W. Robbins, of Millwood, Ohio, says: I purchased one of Dr. Chase's books about two years ago, and have used a number of the recipes, and I find all I have tried give entire satisfaction, and I now want your last edition.

E. L. Burton, a Glove Manufacturer, at Gloversville, N. Y., says: I have never known any preparation for removing paint from clothes equal to Dr. Chase's Renovating Mixture. From experience.

Hiram Sisson, an old Farrier and Farmer of Crown Point, Essex Co., N. Y., says: I have used Dr. Chase's Kitridge and Green Ointments for several years, on human flesh and on horses, in bruises and deep sores with better success than any other preparation which I have ever used, and know they are no humbug, but are worthy of very great confidence.

Hiram Storms, Dyer and Manufacturer, at Ann Arbor, says: I have examined and revised Dr. Chase's Coloring Recipes, and am satisfied that they are practical and good. I have also furnished him with some valuable recipes in that department.

DR. CHASE'S RECIPES.

MERCHANTS' AND GROCERS' DEPARTMENT.

VINEGAR.—Merchants and Grocers who retail vinegar should always have it made under their own eye, if possible, from the fact that so many unprincipled men enter into its manufacture, as it affords such a large profit. And I would further remark that there is hardly any article of domestic use, upon which the mass of the people have as little correct information as upon as it affords such a large profit. And I would further remark upon the different points of the subject, yet I shall give all the knowledge necessary, that families, or those wishing to manufacture, may be able to have the best article, and at moderate figures. Remember this fact—that vinegar must have air as well as warmth, and especially is it necessary if you desire to make it in a short space of time. And if at any time it seems to be "Dying" as is usually called, add molasses, sugar, alcohol or cider—whichever article you are making from, or prefer—for vinegar is an industrious fellow; he will either work or die, and when he begins to die you may know he has worked up all the material in his shop, and wants more. Remember this in all vinegars, and they will never die if they have air. First, then, upon a small scale, for family use.

To Make in Three Weeks.—Molasses, 1 qt.; yeast, 1 pt.; warm rain water, 3 gals. Put all into a jug or keg and tie a piece of gauze over the bung to keep out flies and let in air. In hot weather set it in the sun; in cold weather set it by the stove or in the chimney corner, and in three weeks you will have good vinegar.

When this is getting low, pour out some for use, and fill up the jug in the same proportion as at first, and you will never have trouble for want of good vinegar.

2. A correspondent of the Dollar Newspaper says: "The cheapest mode of making good vinegar is to mix 5 qts. of warm rain water with 2 qts. of Orleans molasses, and 4 qts. of yeast. In a few weeks you will have the best vinegar you ever tasted." He might well say, "The best vinegar you ever tasted," for it would have double the necessary strength, and three or four times the strength of much that is sold; yet this strength would cost less to make, than to buy by the quart.

3. **In Barrels Without Trouble.**—Merchants and Grocers who retail vinegar, can always keep a good supply on hand by

having about two or three barrels out of which to sell, by filling the first one they sell out, before quite empty, with

Molasses, 1 gal.; soft water, 11 gals.

Keeping this proportion to fill the barrel; the vinegar and mother which is left in the barrel makes it work much quicker than if put into empty barrels; so pass around on the next barrel as it is nearly out, having three barrels, and unless you sell more than a barrel a week, you need never be out of vinegar. Some recommend to use alum, cream of tartar, etc., in vinegar, but I say, never. It is always advisable to have a hole in the top of the barrel, if standing on end; if on the side, the bung out and a gauze over it to keep out flies and let air in.

4. **From Sugar, Drippings from Sugar Hogsheads, Etc.**—Dealers who retail molasses often have from five to fifty pounds of sugar left in the barrel after selling out the molasses. Each pound of this, or other sugar, dissolved in two gallons of soft water, makes that amount of good vinegar by either of the above plans. Rinsings of molasses barrels or drippings of sugar hogsheads brought to this degree of sweetness, is as good for vinegar as any other material. Small beer, lager beer, ale, etc., which have become sour, make good vinegar by reducing with water; small beer will need but little water; lager beer will need as much water as beer, or a little more; and ale, twice as much water as ale; they will all need yeast, a quart or two to each barrel, unless put into barrels which have some vinegar in them, and it will do no harm, but quicken the process in all cases if there is vinegar in the barrel.

5. **From Acetic Acid and Molasses.**—Acetic acid, 4 lbs.; molasses, 1 gal.; put them into a 40 gallon cask, and fill it up with rain water; shake it up and let stand from one to three weeks, and the result is good vinegar.

If this does not make it as sharp as you like, add a little more molasses. But some will object to this because an acid is used; let me say to such that acetic acid is concentrated vinegar. Take 1 lb. or 1 pt. or any other quantity of this acid, and add seven times as much soft water, and you have just as good vinegar as can be made from cider, and that instantaneously.

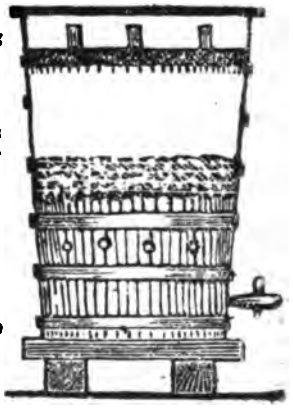
6. **From Apple Cider.**—As there are those who will not have any but cider vinegar, and have plenty of cider out of which to make it, I will give you the best plan of proceeding for manufacturers:

Have a room where it will not freeze; place on end as many barrels or large casks, without heads, to hold as much as you wish to make; fill these one third full of soft water and the other two-thirds with apple cider; yeast, 2 qts. to each cask.

In a few weeks you will have good vinegar; without the yeast it would be all the season in becoming good. Then fill up into barrels for sale, leaving a little, say one-eighth, in the open-barrels, and fill them up with water and cider as before and it will become good much quicker than before. If the water is objected to, use the cider without it, but pure cider makes vinegar too strong for anyone to use, and requires much longer time in making. These barrels may have boards over them to keep out flies and dirt. If the retailer can give it his attention, by having a barrel of good cider vinegar to sell out of, he can always keep it up, if, when he draws out two or three gallons of the vinegar, he will go to his cider, kept for the purpose, and replace the vinegar with the cider; or in making with molasses and water or any other article, fill up with the same; but take notice, if you forget or neglect, and draw your vinegar nearly all out before you fill in, it does not keep the point of sharpness desired, unless you have two or three barrels as mentioned in Recipe No. 3.

Persons who have old sour cider on hand can in this way, or as mentioned in No. 6, have good vinegar from it immediately, as it comes around into vinegar much quicker than new cider.

7. **In Three Days Without Drugs.**—The philosophy of making vinegar quickly is this: The means that will expose the largest surface of the vinegar fluid, of a certain temperature, to the air, will convert it into vinegar in the shortest time; and as there is no way by which so great a surface can be exposed as by the shavings process, and at the same time control the temperature, that plan has been adopted, as explained in the wood cut accompanying, and in the descriptive note:



Main cover, or loose boards

Vinegar Fluid Space

False top, with tubes; and cords hanging through it

Center portion of the tub, which should be filled with the shavings to within an inch or two of the false top

Holes to let in air

The square projections on the side of the Generator represent hoops.

Descriptive Note.—Those wishing to manufacture, to sell at wholesale, will prepare a tub, or square box, and arrange it as shown in the accompanying cut, knowing that the taller and larger the tub, the quicker will the vinegar become good. The air holes are bored through every other, or every third stave, around the whole tub. These holes are to be about one foot or eighteen inches from the bottom; they must also be bored slanting down as you bore inward, otherwise the vinegar would run out and waste as it drips down the side of the tub. These tubs ought to be from ten to twenty feet high, according to the quantity you desire to run off daily. Now take beech maple or basswood boards—and they are valuable in the order named—cut them off about eighteen inches in length, and plane thick, heavy shavings from the edges, and if they do not roll up and stay in nice rolls, you must roll and tie them up with small cord; or clean corn cobs will do, but they will only last one season, whilst the shavings will last several years. If cobs are used, they must be put in layers; each layer crossing the other, to prevent their packing too close. Then wet or soak them thoroughly in water, and fill up the tub or tubs with them, until you are within two or three feet of the top, at which place you will nail a stout hoop around, upon the inside of the tub, which shall support the false top, which has been made and fitted for that purpose, through which false top you will have bored good sized gimlet holes about every two inches all over its whole surface, through each of which holes a small cord, about four or five inches in length, is to be drawn, having a knot tied upon its upper end to keep it in place, and to prevent the vinegar-fluid from working out too fast. The size of these holes, and the size of the cord, must be such as to allow the amount of vinegar being made to run through every twelve hours, or if time can be given to put it up so often, it may run through every six hours. You will cork all around between the false top and the tub with cotton, which causes the vinegar-fluid, hereafter to be described, to pass through the gimlet holes and drip from the ends of the small cords, evenly, all over the shavings, otherwise if the false top was not exactly level, the vinegar-fluid would all run off at the lowest point, down the side of the tub, and be a very long time in becoming good, whilst if it drips slowly and all over and down through the shavings, it soon comes around into good vinegar. The holes bored for that purpose, in warm weather, oxidizes or acetifies the vinegar-fluid, by affording the two essential points of quickly making good vinegar; that is, air and heat, without the expense of a fire to warm the fluid, or room in which the vinegar is made. Now bore five one-inch holes through the false top, one of them through the center, and the others two-thirds of the distance each way, toward the outside of the tub, into which holes drive as many pins, having a three-quarter inch hole bored through them lengthwise, which makes them tubes; cut the tubes off an inch below the top of the tub, so as to be out of the way of the main cover or loose boards which will be thrown over the top of the tub for the purpose of keeping out flies and dirt, and also to keep the heated air in, which comes up through the tubes; this air becomes heated by the chemical action of the air upon the vinegar-fluid as it drips along down through the shavings in the tub, becoming so hot that it would be uncomfortable to hold the hand therein. The space between the false top and the cover is called the vinegar fluid space, and it must be sufficiently tight in the joints of the tub, or box, to hold the fluid when put in. Now take a barrel of good vinegar and pour it into the top of the tub, and let it drip through the gimlet holes, from the cords, over the shavings, two or three times, each time putting in one gallon of highwines, or two or three gallons of cider, as the case may be, which sours the shavings and greatly helps the starting process of the vinegar-making. Without the addition to the strength of the vinegar as it runs through, it would part with nearly all of its own strength or acidity, to the shavings and thus lose its own life. If you have not, nor cannot obtain, vinegar to start with, you must begin with weak vinegar-fluid and keep adding to it every time through until it becomes very sour; then you will consider yourself ready to begin to make vinegar in double-quick time, by using any of the fluids mentioned in the foregoing vinegar recipes. But manufacturers generally use highwines thirty to forty per cent above proof, one gallon; water, eleven gallons; but persons living a great distance from market will find a cheaper plan by using ninety-eight per cent alcohol, one gallon; water, fifteen gallons; either of which make good vinegar, using yeast, of course, with either article, from one pint to one quart to each barrel being made. Another tub or vat must be set in the ground, under the generator, or in a cellar, as the case may be, to hold as much vinegar as the space between the false and real top will contain, or as much as you wish to make at one time; from which it is to be carried up in buckets, (or a wooden pump having a leather sucker is quicker and easier to raise it), to the top of the generator, until it becomes good vinegar, which it will do in the time mentioned at the head of this recipe, if passed through the generator by the faucet every twelve hours, which it must be; and if the tubs are fifteen or twenty feet high, it will only need passing through once, or twice at most.

Some will have no vinegar but that made from apple cider; then put in one-third water, and it makes vinegar as strong as anybody ought to use; but if they will have it at full strength, make it so, only it requires a little longer time to make.

If those who have cider which has been standing a long time, and does not become vinegar, will reduce it one-third with water, and pass it through this machine, they will grind out first rate vinegar in one or two days' time. Sour beer or ale, the artificial cider, also, if it gets sour, make good vinegar when mixed with some other vinegar in making. Small beer, also drippings from sugar hogsheads in place of molasses, etc. Nothing having sugar or alcohol in it should be thrown away, as all will make good vinegar, which is as good as cash, and ought to be saved—if for no other purpose than to have the more to give the worthy poor.

It was at first thought to be absolutely necessary to make the vinegar-fluid of about seventy-five degrees of heat, and also to keep the room of the same temperature; but it has been found that by keeping the heat in the tub by the false top and the loose cover, that in warm weather it does very well without heating up the fluid, although it would make a little quicker with it; and if desired to make in cold weather, you must heat the fluid and keep the room warm also.

If families choose to try this plan, they can make all they will need in a keg not larger than a common churn, whilst wholesalers will use tubs as tall as their rooms will admit.

The first merchant to whom I sold this recipe, made all the vinegar he could retail by placing strips of board across the centre of a whisky barrel, which supported the shavings in the upper half only, allowing the vinegar to stand in the lower half; as his room was so low, he could only use the one barrel and a wash tub at the top instead of the false-top and space as represented in our cut; it took him only a week to make it in this way. I used the vinegar over a year. The strength of the fluid he used was good common whisky, one gal.; water, four gals. So it will be seen that all kinds of spirit, or articles containing spirit, can be made into vinegar.

Remark—If you wish to make sugar into vinegar, do not attempt to run it through the generator, as it forms mother in that way, and soon fills up the little holes; but make it by standing in a barrel, as mentioned under that head, No. 4.

8. Quick Process, by Standing Upon Shavings.—Take 4 or 5 hogsheads or casks, and set them side by side, having a faucet near the bottom; then fill up the casks full of shavings prepared as in the foregoing recipe, or clean corn-cobs, putting some turning shavings over the top, after having put on an old coffee sack to keep the fine shavings from falling down among the coarse ones; this is to keep in the warmth; now sour the shavings with the best vinegar, by throwing it on the shavings and letting it stand half a day or so; then draw off by the faucet at the bottom, and throw it on again, adding 1 qt. of highwines to each barrel each time you draw it off, as the shavings absorb the acid, and the vinegar would become flat, but by adding the spirit the shavings become soured or acetified, and the vinegar gets better also. When the shavings are right, take highwines 30 or 40 per cent above proof, 1 gal.; molasses, 1 qt.; soft water, 14 gals.; (river or well water will do, but not as good for any vinegar) and put it upon the shavings, and draw off and put on again from one to three times daily until sufficiently sour to barrel up.

Mr. Jackson, a grocer of Jackson, Mich., has been making in this way for several years. He uses also, sour ale, rinsings of sugar hogsheads, or the drippings, and throws this fluid on the shavings, and draws off and returns from one to three times each day until sufficiently sour to barrel up, which only requires a few drawings; he then fills his barrels only two-thirds full, and leaves the bungs out summer and winter, and if he finds a barrel is getting weak in strength, he puts in a quart of highwines, which recruits the strength, or gives it work again, which, as I remarked before, if you give him stock to work on, and air, he labors—without both, he dies. Bear this in mind, and your vinegar will improve all the time, no matter how, or of what it is made. He fills the tubs only one-third or one-half full when making, does not heat, but uses yeast, and only works them in warm weather, and in winter fills the tubs with good winegar, and lets them stand over until spring, when they are ready for work again.

This man, with five casks thus managed, has sold over three hundred barrels of vinegar in one season.

It might not be amiss, in closing this long subject, to say that when you have no vinegar to begin with in either of the processes, that if you commence with the fluid quite weak at first, it begins to sour quicker than if begun with at full strength, then as it begins to become sour, add more of the spirit, cider, sugar, or molasses, etc., until you get the desired point of strength. So you might go on until a swallow of it would strangle a man to death, and remove every particle of skin from his throat.

BUTTER.—To Preserve Any Length of Time.—First—work out all the buttermilk. Second—use rock salt. Third—pack in air-tight jars or cans. Fourth—keep in a cool place, and you will have nice butter for years, if desired to keep so long. A short recipe, but it makes long butter.

Merchants, who take in more butter than they can sell during the warm months, can put it into jars and cover the jar with about half an inch of lard over the top of the butter, and place it in the cellar; or they can put about an inch or two of brine in place of the lard, and have it do well, first working out all the buttermilk which may remain, when bought in. It would be well for them to have their regular customers to furnish them butter, to whom they furnish the right kind of salt, as the rock, or crystal salt, does not contain so much lime as the common, which is evaporated by artificial heat. Let sugar, and saltpeter, and all other peters, alone, if you wish good butter, either for present use or long keeping.

2. **Making—Directions for Dairymen.**—If butter makers or dairymen will use cnly shallow pans for their milk—and the larger the surface, and the less the depth of the milk the better—then put into each pan, before straining, 1 qt. of cold spring-water to every 3 qts. of milk, they will find the cream will begin to rise immediately, and skim every 12 hours, the butter will be free from all strong taste arising from leaves, or coarse pasturage.

It is a fact, also that high or up-land makes better butter than when the cows are kept on rich bottom pasturage. The object of the cold water is double: it cools the milk, so that the cream rises before the milk sours, (for when milk becomes sour it furnishes no more cream,) and also improves the flavor.

3. **Storing—The (Illinois) Prairie Farmer's Method.**—First, work the buttermilk carefully from the butter; then pack it closely in jars, laying a thin cloth on top of the butter, then a thin layer of salt upon the cloth; now have a dry cellar, or make it so by draining, and dig a hole in the bottom of it, for each jar, packing the dirt closely and tightly around the jar, allowing the tops of the jars to stand only an inch or so above the top of the cellar bottom; now place a board with a weight upon each jar to prevent removing by accident, and all is safe.

Merchants who are buying in butter, should keep each different lot separate, by using the thin cloth and salt, then another cloth over the salt before putting in the next lot, for mixed butter will soon spoil, besides not selling as well, and finally cover the top as before described. If kegs or barrels are used, the outside must be as well painted as possible to prevent outside tastes, and also to preserve the wood.

FRUITS TO KEEP.—Without Loss of Color or Flavor.—To each pound of rosin, put in 1 oz. of tallow, and 1 oz. of beeswax. Melt them slowly over the fire in an iron kettle, and be careful and not let it boil. Take the fruit separately and rub it over with whiting or fine chalk (to prevent the coating from adhering to the fruit,) then dip it into the solution once and hold it up a moment to set the coating; then pack away carefully in barrels or boxes in a cool place. When you dip oranges or lemons, loop a thread around to hold them; for pears or apples, insert a pointed stick to hold them by, then cut it off with a pair of sharp, heavy shears. Oranges or lemons cannot be put in boxes but must be placed on shelves, as the accumulated weight would mash them down.

It is now a well established fact that articles put up scientifically air-tight, may be kept fresh and fair for any length of time, or until wanted for use. This composition makes good sealing for air-tight cans or bottles, pouring it around the top of the can cover, and dipping the neck of the bottle into it. A patent has been secured for a composition for preserving fruit, of different proportions, however, from the foregoing, but the agent, at the Ohio State Fair in 1859, had such poor success in selling rights at three dollars that he reduced the price to twenty-five cents, and still but few would take hold of it, so that I think not much more will be done with the patent. I purchased twenty recipes for one dollar, but finding his composition to stick together and tear off pieces wherever they touched each other, I went to work to improve it, as above. The patented proportions are, rosin, 5 lbs.; lard or tallow, 8 oz.; beeswax, 4 oz. The patentee is John K. Jenkins, of Wyoming, Pa., and the patent was issued December 8, 1858. It does not work well on peaches or other juicy garden fruits.

EGGS.—To Preserve for Winter Use.—For every three gallons of water, put in 1 pt. of fresh slacked lime, and common salt ½ pt.; mix well, and let the barrel be about half full of this fluid, then with a dish let down your fresh eggs into it, tipping the dish after it fills with water, so they roll out without cracking the shell, for if the shell is cracked the egg will spoil.

If fresh eggs are put in, fresh eggs will come out, as I have seen men who have kept them two, and even four, years, at sea. A piece of board may be laid across the top of the eggs, and a little lime and salt kept upon it, which keeps the fluid as strong at the top as at the bottom. This will not fail you. They must always be kept covered with the brine. Families in towns and cities by this plan can have eggs for winter use at summer prices. I have put up forty dozen with entire success.

The plan of preserving eggs has undoubtedly come from a patent secured by a gentleman in England in 1791, Jaynes, of Sheffield, Yorkshire, which reads as follows:

2. **English Patented Method.**—"Put into a tub 1 bu. Winchester measure, of quick lime, (which is fresh slacked lime,) salt 32 oz.; cream of tartar, 8 oz. Use as much water as will give that consistency to the composition as will cause an egg to swim with its top just above the liquid. Then put and keep the eggs therein, which will preserve them perfectly sound at least 2 years."

Persons who think it more safe can follow this English plan. I desire in all cases to give all the information I have on each subject. Consequently I give you the following also:

3. **J. W. Cooper, M. D.'s, Method of Keeping and Shipping Game Eggs.**—"Dissolve some gum shellac in a sufficient quantity of alcohol to make a thin varnish, give each egg a coat, and after they become thoroughly dry, pack them in bran or saw dust, with their points downwards, in such a manner that they cannot shift about. After you have kept them as long as you desire, wash the varnish carefully off, and they will be in the same state as they were before packing, ready for eating or hatching."

This would seem to be from good authority, as Dr. Cooper has been engaged for the last thirty years in raising nothing but the best game fowls, and he has frequently imported eggs. He invariably directed them to be packed as above, and always had good success with them, notwithstanding the time and distance of the journey. He has also published a work upon Game Fowls. His address is Media, Delaware Co., Pa.

This last plan would be a little more troublesome, but still would not be very much to prepare all that families would wish to use through the winter, or even for the retailer; as the convenience of having them in a condition to ship would be one inducement to use the last method, for with the first they must be taken out and packed in oats or something of that sort, to ship; with the last they are always ready; and weather permitting, about Christmas or New Year's, fresh and good eggs in cities always command sufficient price to pay for all trouble and expense in the preservation and shipment.

The Sex of Eggs.—Mr. Genin lately addressed the Academy des Sciences, France, on the subject of the sex of eggs. He affirms that he is now able, after having studied the subject for upwards of three years, to state with assurance that the egg containing the germ of males, have wrinkles on their smaller ends, while female eggs are smooth at the extremities.

While on the subject of eggs, you will excuse me for putting in a couple of items more which appropriately belong to other departments:

4. **To Increase the Laying.**—"For several years past I have spent a few weeks of the latter part of August on the Kennebec river, in Maine. The lady with whom I have stopped is a highly accomplished and intelligent housewife. She supports a "hennery," and from her I derived my information in the matter. She told me that for many years she had been in the habit of administering to her hens, with their common food:

"Cayenne pepper, pulverized, at the rate of 1 teaspoon each alternate day to 1 doz. fowls.

"Last season, when I was with her, each morning she brought in from twelve to fourteen eggs, having but sixteen hens in all. She again and again experimented in the matter by omitting to feed with the Cayenne for two or three days. The consequence invariably was that the product of eggs fell off five or six per day. The same effect of using the Cayenne is produced in winter as in summer."—Boston Transcript.

5. **To Fry—Extra Nice.**—Three eggs; flour, 1 tablespoon; milk, 1 cup.

Beat the eggs and flour together, then stir in the milk. Have a skillet with a proper amount of butter in it, made hot, for frying this mixture; then pour it in, and when one side is done brown, turn it over, cooking rather slowly; if a larger quantity is needed, it will require a little salt stirred in, but for this amount, the salt in the butter in which you fry it, seasons it very nicely.

BURNING FLUID.—Best in Use.—Alcohol, of 98 per cent, 9 pts.; good camphene, 1 qt., or in these proportions. Shake briskly, and it will at once become clear, when without the shaking it would take from 6 to 7 qts. of alcohol to cut the camphene, while with the least it is the best.

These proportions make the best burning fluid which can be combined. Many put in camphor gum, alum, etc., the first to improve its burning qualities, the last to prevent explosion, but they are perfectly useless for either, from the fact that camphor adds to the smoking properties, and nothing can prevent the gas arising from any fluid that will burn, from explosion, if the fire gets to it when it is confined. The only safety is in filling lamps in daytime, or far from fire or lights; and also to have lamps which are perfect in their construction, so that no gas may leak out along the tube, or at the top of the lamp; then let who will say he can sell you a recipe for non-explosive gas or fluid, you may set him down at once for a humbug, ignoramus, or knave. Yet you may set fire to this fluid, and if not confined it will not explode, but will continue to burn until all is consumed. Families cannot make fluid any cheaper than to buy it, as the profit charged on the alcohol is usually more than that charged on fluid; but they will have a better article by this recipe than they can buy, unless it is made from the same, and it is best for any one, even the retailer, only to make small quantities at a time, and get the freshest camphene possible. When made in large quantities, even a barrel, unless sold out very soon, the last part is not as good as the first, owing to the separation of the camphene from the alcohol, unless frequently shaken, whilst being retailed out.

INTEREST.—Computing by One Multiplication and One Division, at any Rate Per cent.—Multiply the amount by the number of days, (counting 30 days to each month.)

Divided by 60 gives the interest at 6 per cent.
Divided by 45 gives the interest at 8 per cent.

Divided by 40 gives the interest at 9 per cent.
Divided by 36 gives the interest at 10 per cent.
Divided by 30 gives the interest at 12 per cent.

Example.—$150 at 3 months and 10 days, or 100 days, is 15,000, divided by 60 gives $2.50, which is the interest at 6 per cent; or divided by 45 gives $3.33, interest at 8 per cent, etc.

I sold a gentleman, a miller, one of my books the second time, as some person stole the first before he became familiar with the foregoing rules, which he admired too much to lose.

2. Method by a Single Multiplication.—Rule.—To find the interest on any given sum of money for any number of years, months or days. Reduce the years to months, add in the months if any, take one-third of the days and set to the right of the months, in decimal form, multiply this result by one-half the principal, and you have the interest required.

Example.—The interest required on $1.400 for 2 years, 3 months, and 9 days:

Interest on $1,400 for 2 years, 3 months, and 9 days.

27.3
700
————

Answer required, $191.10.0

The above example is at six per cent. Rule to obtain the interest at any other rate: For seven per cent increase the interest at six per cent by one-sixth, for eight per cent by one-third, for nine per cent by one-half, for ten per cent by two-thirds, for eleven per cent by five-sixths, for twelve per cent multiply by two. Twelve per cent is the highest rate of interest allowed by any State, except Minnesota, which, I believe, allows fifteen per cent.

In pointing off, persons will observe to point off as many figures in the product or answer as there are decimal points in the multiplicand. The balance, or remainder, show you the dollars and cents.

COUNTERFEIT MONEY.—Seven Rules for Detecting.—First—Examine the form and features of all human figures on the notes. If the forms are graceful and features distinct, examine the drapery—see if the folds lie natural; and the hair of the head should be observed, and see if the finest strands can be seen.

Second.—Examine the lettering, the title of the bank, or the round handwriting on the face of the note. On all genuine bills, the work is done with great skill and perfectness, and there has never been a counterfeit but was defective in the lettering.

Third.—The imprint, or engraver's name. By observing the great perfection of the different company names in the evenness and shape of the fine letters, counterfeiters never get the imprint perfect. This rule alone, if strictly observed, will detect every counterfeit note in existence.

Fourth.—The shading in the back-ground of the vignette, or over or around the letters forming the name of the bank, on a good bill is even and perfect, on a counterfeit is irregular and imperfect.

Fifth.—Examine well the figures on the other parts of the note, containing the denomination, also the letters. Examine well the die work around the figures which stand for the denomination, to see if it is of the same character as that which forms the ornamental work surrounding it.

Sixth.—Never take a bill that is deficient in any of the above points, and if your impression is bad when you first see it, you had better be careful how you become convinced to change your mind—whether your opinion is not altered as you become confused in looking into the texture of the workmanship of the bill.

Seventh.—Examine the name of the State, name of the bank, and name of the town where it is located. If it has been altered from a broken bank, the defects can plainly be seen, as the alteration will show that it has been stamped on.

INKS—Black Copying, or Writing Fluid.—Rain water, 2 gals., gum arabic, ¼ lb.; brown sugar, ¼ lb.; clean copperas, ¼ lb.; powdered nutgalls, ¾ lb.; bruise all, and mix, shaking occasionally for 10 days, and strain; if needed sooner, let it steep in an iron kettle until the strength is obtained.

This ink can be depended upon for deeds or records which you may wish some one to read hundreds of years to come. Oxalic acid one-fourth oz. was formerly put in, but since the use of steel pens it does not work well on them. If not used as a copying ink, one-fourth the gum or sugar is sufficient, as it flows more free without them.

2. **Common Black.**—Logwood chips, 1 lb.; boil in 1½ gals. of water until reduced to 2 qts.; pour off, and repeat the boiling again as before; mix the two waters, 1 gal. in all; then add bi-chromate of potash, ½ oz.; prussiate of potash, ¼ oz.; prussiate of iron (prussian blue), ½ oz.; boil again about 5 minutes, and strain and bottle for use.

You will find none of the guminess about this ink that is found in that made from the extract of logwood; yet it is not presumed that this will be as durable as the gall inks, for deeds, records, etc., etc., but for schools and common use, it is as good as the most costly inks. This copy was prepared with it, which was made two years ago.

3. **Red—The Very Best.**—Take an ounce vial and put into it a teaspoon of aqua ammonia, gum arabic the size of 2 peas, and 6 grs. No. 40 carmine, and 5 grs. No. 6 or 8 carmine also; fill up with soft water and it is soon ready for use.

This forms a beautiful ruling ink. I sold the book in the Pike County Bank, Ill., from the fact that this ink was so much better than that which they could get of any other make. Speaking of banks, makes me think of what a gentleman of Michigan City, Ind., told me about a black ink for banking purposes which would never fade, composed of two articles only:

Iron or steel filings and simple rain water, exposing it to the sun for a good length of time; pale when first written with, but becoming very black.

I have never thought to try it, but now mention it, for fear it might be good, and lost to the world, unless now thrown to the public.

4. **Blue.**—Take sulphate of indigo and put into water until you get the desired depth of color; that sold in little boxes for blueing clothes is the article desired.

This does well for school children, or any writing not of importance to keep; but for bookkeeping it is not good, as the heat of a safe in a burning building fades away the color.

5. **Indelible.**—Nitrate of silver, 11 grs.; dissolve it in 30 grs., (or about a teaspoon) of water of ammonia; in 85 grs. (or 2½ teaspoons) of rain water, dissolve 20 grs. of gum arabic When the gum is dissolved put into the same vial also 22 grs. of carbonate of soda, (sal-soda.) When all is well dissolved, mix both vials, or their contents, and place the vial containing the mixture in a basin of water, and boil for several minutes, or until a black compound is the result. When cold it is ready for use. Have the linen or other goods starched and ironed, and perfectly dry; then write with a quill pen.

If twice the amount is made at a time it will not cost any more, as the expense is only from the trouble of weighing, so little is used of the materials. Soft soap and boiling cannot efface it, nor years of wear. Use only glass vessels.

6. **Powder—Black.**—Sulphate of copper, 1 dr.; gum arabic, ¼ oz.; copperas, 1 oz.; nutgalls and extract of logwood, 4 ozs. each; all to be pulverized and evenly mixed.—Scientific American.

About one oz. of the mixture will be required to each pint of boiling water used. It will be found a valuable color for boot, shoe and harness-edge, also. It should stand a couple of weeks before using, or it may be steeped a few hours if needed sooner.

HONEYS.—Artificial Cuba Honey.—Good brown sugar, 10 lbs.; water, 1 qt.; old bee bread honey in the comb, 2 lbs.; cream of tartar, 1 teaspoon; gum arabic, 1 oz.; oil of peppermint, 3 drops; oil of rose, 2 drops. Mix and boil 2 or 3 minutes and have ready 1 qt. more of water in which an egg is put well beat up; pour it in, and as it begins to boil, skim well, remove from the fire, and when a little cool, add 2 lbs. of nice bees' honey and strain.

This is really a nice article, looking and tasting like honey. It has been shipped in large quantities under the name of "Cuba Honey." It will keep any length of time as nice and fresh as when first made, if sealed up. Some persons use a tablespoon of slippery elm bark in this amount, but it will ferment in warm weather, and rise to the top, requiring to be skimmed off. If it is to be used only for eating purposes, the cream-of-tartar and gum arabic may be left out, also the old bee-bread honey, substituting for it another pound of nice honey.

2. **Domestic Honey.**—Coffee sugar, 10 lbs.; water, 3 lbs.;

cream of tartar, 2 ozs.; strong vinegar, 2 tablespoons; the white of 1 egg well beaten; bees' honey, ½ lb.; Lubin's extract of honeysuckle, 10 drops.

First put the sugar and water into a suitable kettle and place upon the fire; and when luke-warm stir in the cream of tartar, and vinegar; then continue to add the egg; and when the sugar is nearly melted put in the honey and stir until it comes to a boil, take it off, let it stand a few minutes, then strain, adding the extract of honeysuckle last, let stand over night, and it is ready for use. This resembles candied honey, and is a nice thing.

3. **Excellent Honey.**—An article suitable for everyday use is made as follows:

Good common sugar, 5 lbs.; water 1 qt.; gradually bring it to a boil, skimming well; when cool, add 1 lb. bees' honey and 4 drops of peppermint essence.

If you desire a better article, use white sugar and one-half pint less water and one-half pound more honey. If it is desired to give it the ropy appearance of bees' honey, put into the water one-fourth ounce of alum.

4. **Premium Honey.**—Common sugar, 4 lbs.; water, 1 pt.; let them come to a boil, and skim; then add pulverized alum, ¼ oz.; remove from the fire and stir in cream of tartar ½ oz.; and water or extract of rose, 1 tablespoon, and it is fit for use.

This took the premium at an Ohio State Fair. We use the recipes for common sugar and the one using Lubin's extract of honeysuckle, and desire nothing better.

JELLIES—Without Fruit.—Take water, 1 pt. and add to it pulverized alum, ¼ oz., and boil a minute or two; then add 4 lbs. of white crushed or coffee sugar, continue the boiling a little, strain while hot; and when cold put in half of a two shilling bottle of extract of vanilla, strawberry, or lemon, or any other flavor you desire for jelly.

This will make a jelly so much resembling that made from the juice of the fruit that any one will be astonished and when fruit cannot be got, it will take its place admirably. I have had neighbors eat of it and be perfectly astonished at its beauty and palatableness.

BAKING POWDERS—Without Drugs.—Baking soda, 6 ozs.; cream of tartar, 8 oz.; first dry them from all dampness by putting them on a paper and placing them in the oven for a short time, then mix and keep dry, in bottles or boxes.

The proper amount of this will be about one teaspoon to each quart of flour being baked. Mix with cold water, and bake immediately. This contains none of the drugs generally used for baking powders; it is easy made, and does not cost over half as much as to buy them already made. This makes biscuit very nice without milk or shortening. Yet if milk is used, of course it would be that much richer. The main object of baking powders is for those who are "Keeping bach," as it is called, or for those who are far from civilized conveniences, and for those who prefer this kind of bread or biscuit to

that raised with yeast or sour milk and saleratus. I stand among the latter class.

MOUTH GLUE—For Torn Paper, Notes, Etc.—Any quantity of glue may be used, with sugar, only half as much as of the glue.

First dissolve the glue in water, and carefully evaporate as much of the water as you can without burning the glue; then add the sugar; if desired to have a very nice article, use gelatine in place of the glue, and treat in the same manner; when the sugar is dissolved in the glue pour it into moulds or a pan and cut it into squares, for convenience, before it gets too hard. This dissolves very quickly by placing the edge of a piece in the mouth, and is not unpleasant to the taste, and is very handy for office or house use. Use to stick together torn bills, paper, etc., by softening the edge of a piece, as above, then touching the parts therewith and pressing together for a moment only.

PUBLISHERS' MANUFACTURERS' AND WORKSHOP RECIPES.

Amber, Artificial.—Dissolve shellac in an alkaline lye; then mix with a solution of chlorine until the lac is entirely precipitated. Wash in water and heat gently till it runs clear. It can then be molded.

Artificial Gold.—Platinum, 7 parts; copper, 16 parts; zinc, 1 part; fuse together. Said to be best imitation of gold yet discovered; resists acids and will not easily tarnish.

Cottolene and Cottosuet are made as follows: Cotton oil, 60 lbs.; oleostearine, 40 lbs. Do not bleach, the color should be yellow. Melt together at 180 degrees F ; mix and filter into cans.

Cheese or Butler Coloring.—Potassium carbonate, 1 part; roll annatto, 1 part; digest 1 day in 10 parts water. Filter and add water if necessary. It is perfectly harmless.

Composition for Picture Frames, Interior Ornaments, Etc.—Boil 2 lbs. resin, 1 gill Venice turpentine, 1 pint linseed oil. Dissolve in another vessel 1 lb. glue in 1 gal. water. Mix all and boil until water is evaporated, then add pow'd whiting until the mass has the consistency of soft putty. Mold while warm.

Chewing Gum.—Melt paraffine, with a little olive oil and glycerine together; add a few drops of oil of wintergreen or other suitable flavor.

Black Enamel for Bicycles, Etc.—Asphalt, 40 oz.; boiled linseed oil, ½ gal.; litharge, 6 oz.; pow'd zinc sulphate, 4 oz.; red lead, 6 oz. Melt the asphalt, add the others; boil 2 hours; stir in [illegible] oz. fused dark amber gum and 1 pint hot linseed oil; boil 2 hours more. When thickened, remove from the fire, and thin with 1 gal. turpentine.

Butterine or Oleomargerine.—Beef suet washed in warm and afterward cold water is melted in a pan at 120 deg. F., then cooled slowly and kept 12 hours at 70 deg. It is then pressed between cloths to remove the stearin or solid part; and the oil (about half of the original suet) is mixed with milk, viz., 20 lbs. oleomargerine, 4 qts. milk, 3 qts. water, a little annatto, to color; carbonate of soda and salt to taste. It is then mixed at a temperature of 70 deg. and cooled on ice.

Flavoring for Cigars and Tobacco.—Moisten ordinary cigars with a strong tincture of cascarilla, adding a little gum benzoin and storax. Inferior tobacco may be flavored by using the following: 2 oz. cinnamon; 4 oz. tonka beans; 1 qt. rum. Grind fine and macerate. A strong infusion of cascarilla alone also gives an excellent flavoring.

Fillers for Wood.—Equal parts Japan, boiled linseed oil and turpentine, and one-half that quantity of dry starch. Mix and apply with sponge or flannel. Dry 48 hours and rub with No. 0 sandpaper. Make second application, and when dry rub with ticking over a block of wood, until the wood is perfectly smooth. Stain and finish up in any desired style. Use no color for oak.

Fly Poison.—White arsenic, 1 dram to 1 pt. water. Sweeten with sugar or molosses; place in a saucer. To make fly paper, saturate it in this solution and dry.

Sticky Fly Paper.—Boiled linseed oil, 1 fluid dram; resin, ½ lb. Melt, and add a little honey. Soak the paper in strong alum water, dry, and apply the

Gun Cotton.—Mix 4½ oz. of pure dry nitrate of potash (saltpeter) with 30 fluid drams sulphuric acid (spec. gr. 1.845). Cool thoroughly. Stir into this mixture carefully 120 grains best carded cotton (with a glass tube). In about one minute, if the cotton is thoroughly saturated, remove it and rinse repeatedly until litmus shows no presence of acid; then squeeze in a cloth and pull out well. Dry cautiously at a temperature not more than 140 deg. Fah. Use great caution; it is now explosive.

Hektograph or Copying Pad.—For a tin dish 7x11 in., gelatine or glue, 3 oz.; glycerine, 15 oz.; barium sulphate or kaolin (finely powdered), ¾ oz.; water, 11 oz.; oil of cloves, 40 drops. Soak the gelatine over night in cold water, then pour off the excess of water, warm the gelatine in a double kettle, add the glycerine and barium and mix thoroughly, pour in the tin dish and cool; avoid bubbles.

Hektograph Ink.—Dissolve 1 oz. violet or blue aniline in 7 oz. hot water, cool, add 1 oz. wine spirits and ¼ oz. glycerine and 1 drop of carbolic acid.

Hektograph. to Use.—Moisten slightly with a sponge and dry with a blotter. With a new steel pen write or draw on writing paper with hektograph ink the letter or design, and dry. Place this face downward on the pad; rub gently all over the back to insure perfect contact. After a minute remove and take your copies one after another with hand pressure or a rubber roller. When peeling off copies, grasp a corner. Immediately after each job, wash the surface of the pad lightly with a sponge and cold water, with sometimes a little muriatic acid added to the water. If the surface becomes uneven remelt it and cool. If too sticky, add a little gelatine in remelting. In warm weather use less glycerine.

Drawing Ink, Very Black and Indelible.—Grind a good quality of India ink in a hot solution of shellac dissolved in water and borax.

Ink for Rubber Stamps, Rapid Drier.—Crystalized aniline black, ½ oz. in 15 oz. pure alcohol; add 15 oz. concentrated glycerine. Pour onto the pad or cushion and rub with a brush.

Ink Powder—Excellent Article.—1 lb. nutgalls, 7 oz. copperas, 4 oz. gum arabic, 3 powdered cloves. Pulverize and mix. Will make 1 gal. black ink. Dissolve in water.

India Ink, Cheap.—Grind fine lampblack and gelatine, scent with camphor or musk essence and mold in sticks. It can be improved by washing the lampblack with a solution of caustic soda and then straining off the solution or drying it out.

In Making Inks or Other Colors Than Black.—Use aniline dyes in proportion of 3 or 5 parts to 7 of gelatine. The above may be used for typewriter ribbon (which see).

Honey, Artificial.—Light brown or white sugar, 15 lbs.; water, 3 qts.; cream tartar, 60 grains; ess. of rose, 15 drops; ess. of peppermint, 15 drops; honey, 3 lbs. Bring sugar and water to a boil; add the cream tartar, dissolved in water; boil honey slightly and stir all together, then add the essence when cold. For a better quality add more honey.

Artificial Ivory.—Four parts sulphuric acid; 50 parts water. Macerate peeled potatoes in the solution 36 hours. Dry the mass between blotting paper and subject while in the molds to great pressure.

Japanning.—The articles are varnished and then heated to 250 to 300 deg. Fah. This drives off the volatile parts of the varnish and gives a high polish.

Lard Compound.—A good imitation. Cotton oil, 60 lbs.; deodorized hog's fat, 20 lbs.; tallow, 10 lbs.; oleostearine, 10 lbs.

Lacquer for Iron, Cheap.—Asphaltum, 10 parts; resin, 3 parts; lampblack, 1 part; petroleum, 25 parts. Mix and set in a warm place for a few days, stirring occasionally until dissolved; then strain.

Liquid Glue or Mucilage.—Dissolve 1 part clear glue in 1 part water and 1 part strong vinegar, adding ¼ part alcohol and a little alum.

Mucilage, Cheap.—Dextrine (British gum) dissolved in hot water to the proper consistency; add a little acetic acid and a few drops of clove oil.

Carbon Paper.—Melt 10 parts of lard, 1 part wax and mix with lampblack to form a soft paste. With a brush saturate one side of unglazed paper. Remove the excess and press. For other colors use the anilines.

Tracing Paper.—Saturate thin writing paper with benzine; coat at once with varnish by immersing. To make the varnish use boiled, bleached linseed oil, 20 lbs.; lead shavings, 1 lb.; zinc oxide, 5 lbs.; Venice turpentine, ½ lb. Mix and boil 8 hours. After cooling strain and add 5 lbs. white copal, ½ lb. gum sandarac.

Papier Mache.—Grind waste paper to a fine pulp with lime water and a little gum dextrin. Press it into form in molds; coat with linseed oil; bake with high temperature and varnish. For ornamenting wood, etc., mix the pulp before molding with kaolin, chalk or fresh slacked lime. To waterproof it, add sulphate of iron, quick lime and glue. Add borax and phosphate of soda to render incombustible. The product is very light and durable. It may be lacquered and decorated after finishing.

Neatsfoot Oil is obtained from boiling the feet of cattle. The feet are boiled and the oil skimmed off. It is refined by filtering. Sometimes the marrow fat of the bones is added.

Potato Starch. Grate or grind the tubers to a mush; mix with water in a tub and strain the milky fluid through a cloth. The starch settles to the bottom and may be cleaned by repeating the process and then drying. The residue when boiled can be mixed with the feed of hogs, poultry or cattle.

Printers' Rollers.—One part best glue, 1 part con. glycerine. Dissolve the glue in water, in a water bath, and gradually add the glycerine. Boil and stir until water is driven off, then cast in well-oiled brass molds. **Another:** 8 lbs. glue, 7 lbs. molasses; boil and mold as above. **Another:** 10½ lbs. glue, 2½ gals. molasses, 1 lb. India rubber dissolved in old of turpentine, 2 oz. Venice turpentine, 2 oz. glycerine, 4 oz. vinegar. Boil and mold as above.

Roofing, Fireproof.—Fifteen pounds sifted unslacked lime, 100 lbs. coal tar. Boil together and apply hot to the surface of the roofing paper It forms a very durable, glazed surface

Rubber Stamp Pad.—A tin box filled with the following composition makes an everlasting article: 1 part gelatine, 1 part water, 6 parts glycerine, and 6 parts coloring matter. The coloring inks are as follows: black, 1 part gelatine (glue), 3 parts lampblack or aliline black or logwood extract, 10 parts glycerine, 1 part alcohol, 2 parts water, 1 part Venetian soap, 1-5 part salicylic acid. For red, blue or violet use aniline colors in place of black (2 parts). Fill the tin in same way as in making "Hektograph," which see. Add the coloring before filling.

Shoe Blacking (good and cheap).—1 lb. ivory black, 1 lb. molasses, 8 tablespoonfuls sweet oil. Dissolve 1 oz. gum arabic in 2 qts. of vinegar with ¼ lb. vitriol; mix together.

Cherry Stain for Furniture, Etc.—Rain water, 3 qts.; annatto, 4 oz. Boil in a copper kettle till the annatto is dissolved; add a piece of potash the size of a walnut. Keep on the fire one-half hour and bottle for use. After staining the article give it a good coat of varnish.

Rosewood Stain.—Alcohol, 1 gal.; camwood, 2 oz. Set in a warm place twenty-four hours. Add extract of logwood, 3 c aqua fortis, 1 oz. When dissolved it is ready for use.

Temperance Drinks, Candies, Ices, Etc.

Remarks.—If soda fountain proprietors and other dispensers of temperance drinks will follow the directions which follow and make some of the articles, they and their customers will be better pleased than by purchasing the ordinary manufactured articles of the day; and families will find them equally applicable to their own use.

Ottawa Root Beer.—1 oz. each sassafras, allspice, wintergreen and yellow dock; ½ oz. each wild cherry bark, coriander and hops; 3 quarts molasses. Pour boiling water on the above: let stand 24 hours; strain and then bottle.

Lemon Juice, Artificial.—Citric or tartaric acid 2¼ oz.; gum arabic, ½ oz.; fresh lemon peel, ¾ oz.; loaf sugar, 2 oz.; boiling water, 1 qt. Macerate until cold and strain.

Sarsaparilla Mead—An Excellent Summer drink—Boil ½ lb Spanish sarsaparilla 5 hours in 1 gal. water, adding water as it evaporates. Strain and stir in 8 lbs. sugar and 5 oz. tartaric acid.

Vichy Water.—For 10 gals., mix with the water sodium carbonate, 4,249 grains; sodium chloride, 112 grains; potassium chloride, 141 grains; sodium bromide, 10 grains; sodium silicate, 15½ grains; lithium carbonate, 11 grains; calcium chloride, 736 grains; magnesium chloride, 308 grains; barium chloride, 6¼ grains; aluminum chloride, 12½ grains; iron chloride, 4/10 of a grain.

Ginger Ale Cooler.—Into a large glass place the juice of one lemon; 1 teaspoonful powdered sugar; 1 bottle cold ginger ale. Stir, decorate with fruit and serve.

Boston Cooler.—In a large glass put skin of one lemon; 3 lumps of ice; 1 bottle sarsaparilla; 1 bottle ginger ale.

Oyster Cocktail.—Three dashes lemon juice in a tumbler; 1 dash tobasco sauce; 1 dash tomato catsup; 6 oysters with their liquor; pepper and salt to taste. Stir well and serve with small fork in the glass.

Soda Cocktail.—Three lumps ice in a large glass; 1 teaspoonful sugar; 3 dashes Angostura bitters; fill with lemon soda and stir.

Cider to Preserve.—Add ½ oz., sulphite of lime to each gallon of cider. (Used by professional cider makers.)

Rye Coffee—"Hunt's Breakfast Powder."—Rye roasted with a little butter and ground fine. An excellent substitute for coffee. Boil thoroughly.

Coffee—Cheap Substitute.—Chop beet root fine and dry in a close pan over the fire. Then roast with a little fresh butter until it can be ground.

Orangeade.—Fill large glass half full fine ice; 1 heaping teaspoonful powdered sugar; juice of 1 orange. Fill up with water; shake, decorate with fruit and serve with straws.

Soda Nectar (Morning Laxative)—Juice of one lemon in large glass; fill glass ¾ full of carbonated water; 1 teaspoonful sugar; mix and add ½ teaspoonful of bicarbonate of soda; drink while foaming.

Rocky Mountain Cooler.—Beat up 1 egg in large glass; add ½ tablespoonful powdered sugar; juice of 1 lemon; fill up with cold cider; stir, grate nutmeg over top and serve.

Handling Mineral Waters—Keep mineral waters at a temperature of 40 to 50 degrees to minimize the liability of explosion when opening.

Apple Cider, to Keep Sweet, with but Trifling Expense.—Two things are absolutely necessary to preserve cider in a palatable state for any considerable time; that is, to clear it of pomace, and then to keep it in a cool place, and the cooler the place the better. And then if kept air-tight, by bottling, it is also better, but farmers cannot take the time nor expense of bottling. Some persons leach it through charcoal, and others boil, or rather scald and skim, to get clear of the pomace. In the first place, cider, that is designed to keep over winter, should be made from ripe, sound, sour apples only, and consequently it will be getting cool weather, and less likely to ferment. Then when made:

Stand in open casks or barrels, and put into each barrel about 1 pt. each of hickory (if you have them; if not, other hard wood) ashes and fresh slacked lime; stir the ashes and lime first into 1 qt. of new milk; then stir into the cider. It will cause all the pomace to rise to the surface, from which you can skim it as it rises, or you can let it remain about 10 hours, then draw off by a faucet near the bottom, through a strainer, to avoid the hardened pomace.

It is now ready for bottling, or barreling, if too much trouble to bottle. If you barrel it, it has been found essential to sulphur the barrel. The sulphuring is done by dipping cotton cloth into melted sulphur, and drying it; then cutting into strips about two by six inches. Put about three gallons of cider into the barrel; fire one end of the strip of the sulphured cloth, and introduce it into the bunghole, and hold it by means of the bung, giving it air sufficient to let it burn, keeping the smoke in as it burns, when you will push the bung in tight and shake the barrel until the sulphur-gas is absorbed into the cider; then fill up the barrel with cider, and if not already in the cellar, place it there, and you have accomplished the two points first spoken of. If the above plan is too much labor, get oil barrels, if possible, to keep your cider in (as vinegar can scarcely be made in an oil barrel), the oil coming out forming an air-tight coat on the top of the cider in the barrel. Or:

5. Make your cider late in the fall, and when made put into each barrel, immediately, ground mustard, ¼ lb.; salt, 2 oz.; pulverized chalk, 2 oz.; stir them up in a little of the cider, then pour into the barrel and shake well.

I have drank cider, kept in this way, in August which was made in early spring; it was very nice.

6. I have had cider keep very nice, also, by keeping in a cool cellar and putting into each barrel:

Mustard seed, 2 oz.; allspice, 2 oz.; sweet oil, ½ pt., and alcohol, 1 pt. only.

Always ship your cider, if you have cider to ship, late in the fall, or early in spring, for if taken out of a cool cellar in hot weather it is sure to start fermentation. If wanted for medicine, proceed as in the following recipe:

7. **To Prepare for Medicine.**—To each barrel of cider just pressed from ripe, sour apples, not watered:

Take mustard seed, unground, 1 lb.; isinglass, 1 oz.; alum pulverized, 1 oz.; put all into the barrel; leave the bung out and shake or stir once a day for four days; then take new milk, 1 qt., and half a dozen eggs; beat well together and put them into the cider and stir or shake again, as before, for 2 days; then let it settle until you see that it is clear, and draw off by a faucet.

And if you wish to use in place of wine, in medicine, put it into bottles; but if designed for family use you can barrel it, bunging it tight, and keep cool, of course, and you will have a very nice article, if the cider was not made too near a well or running stream of water; but it is found that if made too near these the cider does not keep. Judge ye why!

In some parts of England, by using only ripe, sound apples, letting it work clear, racking off about twice, bottling, etc., etc., cider is kept from twenty to thirty years. When cider is drawn off and bottled, it should not be corked until the next day after filling the bottles, as many of them will burst. Then lay on the side

SYRUPS.—To Make the Various Colors.—Powder cochineal, 1 oz.; soft water, 1 pt.; boil the cochineal in the water for a few minutes, using a copper kettle; while boiling, add 30 grs. of powdered alum and 1 dr. of cream of tartar; when the coloring matter is all out of the cochineal, remove it from the fire, and when a little cool, strain, bottle and set aside for use.

This gives a beautiful red, and is used in the strawberry syrups only. Colored rather deep in shade. Pineapple is left without color. Wintergreen is colored with tincture of camwood (not deep). Lemon and ginger with tincture of turmeric. (See Tinctures.) The two last named syrups are not colored high—a light shade only.

2. **Artificial, Various Flavors.**—The groundwork of all syrups ought to be the same, i. e., Simple Syrup; to make it, take 2½ lbs of the best coffee sugar, which is found not to crystalize, and water, 1 pt., or, what is the same, 60 lbs. sugar, water 3 gals.

Dissolve the sugar in the water by heat, removing any scum that forms upon it, and strain while hot. This can be kept in a barrel or keg, and is always ready to flavor, as desired.

3. **Raspberry.**—Is made as follows:

1 gal. white syrup; ½ oz. essence of raspberry; ¾ oz. tincture tartaric acid. Mix well and bottle.

Clove Syrup.—Quintessense of cloves 30 drops; 1 pint simple syrup. Bottle and shake.

Syrup of Nectar.—Essence of nectar ½ teaspoonful; 1 pint simple syrup. Bottle and shake.

Orange Syrup.—Tincture of orange peel 2 oz.; 1 pint simple syrup. Bottle and shake.

Pineapple Syrup.—Essence of pineapple, 1 oz.; tartaric acid, ½ oz.; 1 gallon white syrup. Mix well and bottle.

Vanilla Syrup.—Extract of vanilla, ½ oz.; 1 gallon white syrup. Mix well and bottle.

Wild Cherry Syrup.—Steep 4 oz. wild cherry bark 36 hours in 1 pint cold water. Then press, add ½ lb. white sugar; strain and bottle.

Banana Syrup.—Essence of banana, 1 oz.; lemon extract 6 drops; 1 gal. white syrup. Mix and bottle.

Orgeat Syrup.—Sweet almonds, 3 oz.; bar sugar, 3 oz.; bitter almonds, ½ oz.; pulverized gum arabic, ½ lb. Mash together slowly adding water up to 1 qt. Strain, adding two gallons syrup and bottle.

Cherry Syrup.—Take six pounds of cherries and bruise them; pour on 1½ pints hot water and boil for 15 minutes; strain through a flannel bag and add 3 lbs. of sugar; boil half an hour or more or until the liquid will sink to the bottom of a cup of water (try it with a teaspoonful of the liquid); then turn into jelly cups and cover with paper dipped in the white of an egg. A syrup may thus be prepared of any fruit.

To Prepare and Drink.—Put a spoonful of the jelly in a glass of water and let it stand about 10 minutes. Then stir it up and fill with pounded ice. Currants and raspberries made into 'shrub" furnish a pleasant and cooling drink when mixed with ice water.

Sulphuric Acid Beverage.—Take of dilute sulphuric acid and concentrated infusion of orange peel each 12 drachms; syrup of orange peel five fluid ozs. This is added to two gallons of water. A large wineglassful is taken for a draught, mixed with more or less water according to taste. It is a harmless drink even if taken in considerable quantities and is very refreshing in hot weather.

Lemon Syrup, Common—Was formerly made by dissolving four pounds of crushed sugar in one quart of water, by boiling, and adding three ounces of tartaric acid and flavoring with the oil of lemon; but it is best made as follows:

Coffee sugar, 3 lbs.; water, 1½ pts.; dissolve by gentle heat, and add citric acid 3 oz., and flavor with oil or extract of lemon. See "Extracts."

Or a very nice lemon syrup is made as follows: Take citric acid in powder, ¼ oz.; oil of lemon, 4 drops; simple syrup, 1 quart.

Rub the acid and oil in three or four spoonfuls of the syrup, then add the mixture to the remainder, and dissolve with gentle heat. Citric acid is not as likely to cause inflammation of the stomach as the tartaric, hence its better adaptation to syrups calculated for drinks, and especially in disease.

9. **Lemon Syrup.—To Save the Loss of Lemons.**—Where you have lemons that are spoiling or drying up, take the insides which are yet sound, squeeze out the juice, and to each pint put 1½ lbs. white sugar and a little of the peel; boil a few minutes, strain and cork for use.

This will not require any acid, and one-half tea-spoon of soda to three-fourths of a glass of water with two or three tablespoons of syrup makes a foaming glass. Some persons think they ought to put in water, but if water is added the syrup will not keep as well, and takes more of it.

10. **Soda Syrup, With or Without Fountains.**—The common or more watery syrups are made by using loaf or crushed sugar, 8 lbs.; pure water 1 gal.; gum arabic, 2 oz.; mix in a brass or copper kettle; boil until the gum is dissolved, then skim and strain through white flannel, after which add tartaric acid, 5½ oz.; dissolved in hot water; to flavor use extract of lemon, orange, rose, pineapple, peach, sarsaparilla, strawberry, etc., ½ oz. to each bottle, or to your taste.

Now use two or three tablespoons of the syrup to three-fourths of a tumbler of water and one-half teaspoon of super-carbonate of soda, made fine; stir well and be ready to drink, or use the soda in water as mentioned in the "Imperial Cream Nectar;" the gum arabic, however, holds the carbonic acid so it will not fly off as rapidly as common soda. The above is to be used without fountains; that is, to make it up as used in glasses or for the cheaper fountains, which have an ounce of super-carbonate of soda to the gallon of water; but for the fountains which are charged, in the cities, with carbonic acid gas, no acids are used in the syrups.

11. **Cream Soda, Using Cow's Cream, for Fountains.**—Nice loaf sugar, 5 lbs.; sweet rich cream, 1 qt.; water, 1½ gills; warm gradually so as not to burn; extract of vanilla, ¾ oz.; extract of nutmeg, ¼ oz.

Just bring to a boiling heat, for if you cook it any length of time it will crystalize; use four or five spoons of this syrup instead of three, as in other syrups. If used without a fountain, tartaric acid, one-quarter pound, is added. The tendency of this syrup is to sour rather quicker than than other syrups, but it is very nice while it lasts; and if only made in small quantities and kept cool, it more than pays for the trouble of making often.

12. **Cream Soda, Without a Fountain.**—Coffee sugar, 4 lbs.; water, 3 pts.; nutmegs grated, 3 in number; whites of 10 eggs well beaten; gum arabic, 1 oz.; oil of lemon, 20 drops; or extract equal to that amount. By using oils of other fruits you can make as many flavors from this as you desire or prefer.

Mix all and place over a gentle fire, and stir well about thirty minutes; remove from the fire, strain and divide into two parts; into one-half put supercarbonate of soda, eight ounces; and into the other half put six ounces tartaric acid;

shake well, and when cold they are ready to use, by pouring three or four spoons, from both parts, into separate glasses which are one-third full of cool water; stir each and pour together, and you have as nice a glass of cream soda as was ever drank, which can also be drank at your leisure, as the gum and eggs hold the gas.

13. **Soda Water, Without a Machine for Bottling.**—In each gallon of water to be used, carefully dissolve ½ lb. of crushed sugar and 1 oz. of supercarbonate of soda; then fill half-pint bottles with this water; have your corks ready; now drop into each bottle ½ dr. of citric acid in crystals, and immediately cork and tie down.

These bottles must be handled carefully without shaking and kept cool, until needed; a little more or less sugar can be used to suit the taste of different persons.

OYSTER SOUP.—To each dozen or dish of oysters put ½ pt. water; milk, 1 gill; butter, ½ oz.; powdered crackers to thicken. Bring the oysters and water to a boil, then add the other ingredients previously mixed together, and boil from 3 to 5 minutes only.

Each one will choose to add salt, pepper, etc., to their own taste. Keep about these proportions if you should have to cook for an oyster supper for parties, etc.

TRIPE.—To Prepare and Pickle.—First sew it up, after it is turned inside out; be careful to sew it up tight, that no lime gets into it; now have a tub of lime-water, the consistence of good thick whitewash; let it remain in from 10 to 20 minutes, or until when you take hold of it the dark outside skin will come off; then put it into clean water, changing three or four times to weaken the lime, that the hands be not injured by it; then with a dull knife scrape off all of the dark surface; and continue to soak and scrape several times, which removes all offensive substances and smell. After this, let it soak 20 or 30 minutes in 2 or 3 hot waters, scraping over each time; then pickle in salt and water 12 hours, and it is ready for cooking; boil from 3 to 4 hours, cut in strips to suit, and put it into nice vinegar with the various spices, as desired; renew the vinegar at the expiration of 1 week, is all that will be required further.

Many persons stick up their noses when tripe is spoken of; but, if nicely prepared, I prefer it to any dish furnished by the beef.

MOLASSES CANDY AND POPCORN BALLS.—Candy.—Equal quantities of brown sugar and molasses, and put them into a suitable kettle—copper is the best—and when it begins to boil, skim it well, and strain it, or else pour it through a fine wire sieve to free it of slivers and sticks which are often found in the sugar; then return it to the kettle and continue to boil, until when you have dipped your hand in cold water and passed one or two fingers through the boiling candy and immediately back to the cold water, what adheres, when cold, will crush like dry egg shells, and does not adhere to the teeth when bitten. When done, pour it on a stone or platter which has been greased, and as it gets cool begin to throw up the edges and work it by pulling on a hook or by the hand, until bright and glistening like gold; the hands should have a little flour on them occasionally; now keep the mass by a warm stove (if much is made at one time) and draw it into stick size, occasionally rolling them to keep round, until all is pulled out and cold, then with shears clip a little upon them, at proper lengths for the sticks, and they will snap quickly while yet the stick will bend; no color, no butter, no lard or flavor is used or need be, yet any oil can be used for flavoring, if desired, when poured out to cool.

Sugar left in molasses barrels works very nicely in this preparation. Pulverized white sugar sprinkled amongst it will prevent it from sticking together.

2. **Candy Perfectly White.**—If desired to have candy that is perfectly white, proceed as follows:

Best coffee sugar, 2½ lbs.; the nicest syrup, 1½ pts.; boil very carefully, until when tried as above it crisps like egg shells, or flies like glass; then draw and work upon the hook until very white.

3. **Molasses Candy Without Sugar.**—Porto Rico molasses boiled and worked as above, has a cream shade according to the amount of pulling, and most persons prefer it to the mixture of sugar and molasses, as in the first.

4. **Popcorn Balls.**—Pop the corn, avoiding all that it not nicely opened; place ½ bu. of the corn upon a table or in a large dripping pan; put a little water in a suitable kettle with sugar, 1 lb.; and boil as for candy, until it becomes quite waxy in water, when tried as for candy; then remove from the fire and dip into it 6 to 7 tablespoons of thick gum solution, made by pouring boiling water upon gum arabic, over night, or some hours before; now dip the mixture upon different parts of the corn, putting a stick, or the hands, under the corn, lifting up and mixing until the corn is all saturated with candy mixture; then with the hands press the corn into balls, as the boys do snowballs, being quick, lest it sets before you get through.

This amount will make about 100 balls, if properly done. White or brown sugar may be used. And for variety, white sugar for a part, and molasses or syrup for another batch. Either of these are suited to street peddlers.

5. **Action of Sugar or Candy on the Teeth.**—M. Larez, of France, in the course of his investigations on the teeth, has arrived at the following conclusions:

First—that "refined sugar, either from cane or beet, is injurious to healthy teeth, either by immediate contact with these organs, or by the gas developed, owing to its stoppage in the stomach. Second—that if a tooth is macerated in a saturated solution of sugar, it is so much altered in the chemical composition that it becomes gelatinous, and its enamel opaque, spongy, and easily broken. This modification is due not to free acid, but to a tendency of sugar to combine with the calcareous basis of the teeth."

I have destroyed my own teeth, I have no doubt now, by constantly eating candies, while in the grocery business, before I knew its injurious effects, and I believe it to have destroyed the first teeth of all of my children who were born during my candy-eating propensities. What say our candy-eating gentry to the above?

LEMONADE.—To Carry in the Pocket.—Loaf sugar, 1 lb.; rub it down finely in a mortar, and add citric acid, ½ oz.; (tartaric acid will do) and lemon essence, ½ oz., and continue the trituration until all is intimately mixed, and bottle for use. It is best to dry the powders as mentioned in the Persion Sherbet, next following.

A round tablespoon can be done up in a paper and carried conveniently in the pocket when persons are going into out-of the-way places, and added to half pint of cold water, when all the beauties of a lemonade will stand before you waiting to be drank, not costing a penny a glass. This can be made sweeter or more sour, if desired. If any, however, should prefer an effervescing drink, they can follow the directions given in the next recipe.

Persian Sherbet.—Pulverized sugar, 1 lb.; supercarbonate of soda, 4 ozs.; tartaric acid, 3 ozs.; put all the articles into the stove oven when moderately warm, being separate, upon paper or plates; let them remain sufficiently long to dry out all dampness absorbed from the air, then rub about 40 drops of lemon oil (or if preferred, any other flavoring oil) thoroughly with the sugar in a mortar—wedge-wood is the best—then add the soda and acid, and continue the rubbing until all are thoroughly mixed.

Bottle and cork tight, for if any degree of moisture is permitted to reach it, the acid and soda neutralize each other, and the virtue is thus destroyed. A middling sized tablespoon or two teaspoons of this put into a half pint glass and nearly filled with water and quickly drank, makes an agreeable summer beverage; and if three or four glasses of it are taken within a short time, say an hour or two, it has the effect of a gentle cathartic, hence for those habitually costive it would be found nearly or quite equal to the seidlitz powder, and for children it would be the most pleasant of the two. [The printers have tried it, and can bear testimony to its good qualities.]

TEA—Making of Various Peoples.—The Chinaman puts his tea in a cup, pours hot water on it and drinks the infusion without any additions. The Japanese triturate the leaves before making the infusion. In Morocco they put green tea, a little tansy, and a great deal of sugar in the pot and fill up with boiling water. In Bokhara they flavor the tea with milk, cream or mutton fat in which bread is soaked. In Russia they add lemon juice to the tea before drinking. The best way to make tea is with soft water. Rain water, filtered, is good.

Beer of Various Fruits.—Have two qts. of water boiling; split six figs and cut two apples into six or eight slices each; boil the whole together twenty minutes; pour the liquid into a basin to cool, and pass through a sieve when it is ready for use. A delicious beverage may be made from currants, cherries or blackberries in this way.

Spruce of Aromatic Beer.—For 3 gals. of water put in 1 qt., and ½ pt. of molasses, 3 eggs well beaten. Into 2 qts. of the water boiling hot put 50 drops of the oil you wish to flavor with; or mix 1 oz. each oils of sassafras, spruce and wintergreen, then use 50 drops of the mixed oils. Mix all and strain; let it stand two hours before bottling.

Ginger Beer.—White sugar 5 lbs.; lemon juice 1 gill; honey ¼ lb.; ginger bruised, 5 ozs.; water 4½ gals. Boil the ginger thirty minutes in three qts. of the water, then add the other ingredients and strain; when cold put in the white of an egg well beaten with 1 tablespoonful of lemon essence. Let stand twenty-four hours and bottle.

Cream Beer.—Two and one-fourth lbs. white sugar; 2 lbs. tartaric acid; the juice of two lemons and three pints of water. Boil together five minutes. When nearly cold add the whites of three eggs well beaten; half a cup of flour well beaten; ½ oz. wintergreen essence. Bottle and keep in a cool place. Use two tablespoonfuls of the syrup in a tumbler of ice water. Add ¼ teaspoonful of soda just at the moment you wish to drink, but shake the bottle of syrup before using.

Tomato Beer.—Stem, wash and mash the tomatoes; strain through a coarse linen bag and to every gallon of the juice add 3 lbs. of good brown sugar. Let it stand nine days, and then pour it off from the pulp which will settle in the bottom of the jar. Bottle it closely. Take a pitcher that will hold as much as you want to use, fill it with sweetened water and add a few drops of essence of lemon. To every gallon of sweetened water add a half glass of the beer.

Home-Made Bitters.—Take ½ oz. of the yoke of fresh eggs carefully separated from the whites; ½ oz. gentian root; 1½ drachms orange peel, and 1 pt. boiling water. Pour the water hot onto the ingredients and let them steep in it for two hours; then strain and bottle.

Artiflicial Cream for Coffee.—Beat well one egg with one spoonful of sugar; pour a pint of scalding milk over this, stirring it briskly. Make it the night previous.

Chocolate Caramels.—One cupful of molasses, one cupful of brown sugar, one cupful of milk, one-half cupful of grated chocolate butter the size of an egg. Boil half an hour.

Cocoanut Candy.—Two cupfuls of white sugar, one-fourth cupful of water; boil. Put the pan in a larger pan of water and stir until cool. When it begins to get somewhat stiff and cool enough, stir in grated cocoanut, and stir until cold. Cut into cakes. The meats of any nuts, chopped or grated, may be used, the name of the candy coming from the nuts.

Syrup of Lemons.—Clarify 3 lbs. lump sugar; then pour into this while at weak candy height and boiling and juice of 18 lemons and the peel of 3 grated. Boil together four minutes, strain through lawn and bottle. This syrup is then ready for lemonade, punch, ices, jellies, etc.

Cream Nectar, Imperial.—Water, 1 gal.; loaf sugar, 8 lbs.; tartaric acid, 8 oz.; gum arabic, 1 oz.; put into a suitable kettle and place on the fire. Next, take flour, 4 teaspoons; the whites of four eggs well beaten together with the flour and add water ½ pt.; when the first is blood warm, put in the second and boil three minutes and it is done. Take 3 tablespoons of the syrup to a glass half or two-thirds full of water and add one-third teaspoon of supercarbonate of soda made fine. Stir well and drink at your leisure.

Spanish Gingerette.—To each gallon of water put 1 lb. white sugar; ½ oz. best bruised ginger root; ¼ oz. cream of tartar and 2 lemons sliced. This makes a cooling and refreshing beverage compounded of ingredients highly calculated to assist the stomach and is recommended to persons suffering with dyspepsia or sick headache.

Lemonade.—Fill large glass half full of cracked ice. Add 1 heaping spoonful of sugar. The juice of half a lemon or more according to the acidity desired. Fill up with water; shake and dress with fruit.

Egg Lemonade. Fill large glass half full of cracked ice; add tablespoon of sugar; juice of one lemon or two limes; 1 egg; fill up with water; shake, strain into goblet, dress with fruit.

Mineral Water Lemonade.—Proceed the same as with plain lemonade, putting in seltzer, Apollinaris or other carbonated waters instead of plain water. Stir instead of shaking.

Fruit Juice Lemonades.—Lemonades may be made from fruit juices by proceeding the same as with plain lemonades, excepting that only a small amount of lemon juice should be used and a considerably larger amount of fruit juice.

Milk and Seltzer.—Stomachs which do not assimilate pure milk readily will generally take milk mixed with seltzer (or any carbonated water) in proportions of half and half.

Beef Tea.—Into a glass of hot water, put ½ teaspoon of beef extract; season with pepper and salt to suit the taste.

Pick Me Up.—One lump of ice in a large glass; juice of 1 lemon; 2 tablespoons of Worcestershire sauce. Fill up with seltzer.

Caramel.—Crush and dissolve 7 lbs. loaf sugar in 1 pt. of water and boil it in a 5-gal. agate or copper kettle, stirring now and then. When it gets brown and begins to burn, move it to a portion of the stove where the heat is not so great and let it continue to burn until the smoke becomes dense. Then dip a spoon in it and let a few drops fall in cold water. When it falls to the bottom and crystallizes and becomes brittle, pour into the mass about ½ gal. lukewarm water, little at a time, stirring all the while. When well mixed, filter through coarse flannel while hot. Let it cool and bottle.

Ginger Pop.—Water 5½ gals.; ginger root bruised, 4 ozs.; tartaric acid, ½ oz.; white sugar, 2½ lbs.; whites of 3 eggs well beaten; lemon oil, 1 teaspoon. Boil the root for 30 minutes in one gal. of the water, strain off and put the oil in while hot; mix. Make over night and in the morning skim and bottle, keeping out sediments.

Ice Creams, Etc.—You cannot make good ice cream from milk; the best of cream should be used. Use a good patent freezer, have plenty of ice and rock salt, which is better than common salt. Before putting in the cream, rinse the can, also the paddle, with cold water. The ice should be cracked in pieces not quite so large as an egg. Pack the ice closely around the pail to the height of the freezer, putting alternate layers of ice and salt higher than the cream is in the freezer. Pack firmly, allowing two lbs. of coarse salt to 6 lbs. of ice. Turn the crank slowly and evenly as this gives the best results. When you can no longer turn the crank, you will find that the water has reached the hole in the freezer and your freezing is complete. Pour off the water and wipe very carefully the top of the freezer to keep out salt. Remove the paddle and see that the cream is firmly packed. Cork the hole in the cream pail; cover over with a woolen blanket and set the tub in a cool place until ready to use. Carefully wash and dry every part of the freezer before putting away. It requires more time to freeze water ices than cream and more salt is needed.

Fruit Ice Cream.—Two qts. of milk; 6 eggs; 1½ lbs. sugar; 1½ tablespoons arrowroot; cook as custard. When cold, flavor with vanilla. Then add 1 lb. figs; ¼ lb. citron; and other fruits cut fine. Freeze like ice cream.

Chocolate Ice Cream.—To two heaping tablespoons of best grated chocolate add 1 qt. thick cream, 1 cupful of sugar; mix the chocolate into a thin paste, using about ¾ cup of milk: then mix all together, season with vanilla and freeze.

Apricot Ice Cream.—Cut in halves and stone 1½ doz. ripe apricots; take the meats out of the stones; blanch them in hot water, and put them with the apricots into a porcelain pan, with 1 lb. white sugar and 1 glass of water. Let the whole boil to a soft pulp; run through a sieve and let stand until wanted. When ready for freezing, add gradually to the apricots 1 qt. of the best sweet cream. Mix thoroughly and freeze. Clear the sides often and freeze until stiff, smooth and mellow.

Crushed Strawberry Ice Cream.—Take 3 pts. sweet cream, 12 ozs. powdered sugar, 2 eggs and 1 spoonful of vanilla. Mix, place over the fire and stir constantly until it boils; remove from the fire, strain and pass through a hair sieve into the freezer. Crush to a pulp 1 qt. ripe strawberries, with 6 oz. powdered sugar. Mix this pulp well with the frozen cream and give the freezer a few more turns to harden.

A very good ice cream can be made by adding to 1 qt. of the juice of fresh strawberries 2 lbs. of fine white sugar and 2 qts. of cream; mix well and freeze. Raspberries, pineapples and other fruits may be made in the same manner.

Tea Ice Cream.—To 1 lb. of granulated sugar put 1 pt. of strong green tea, 1½ pts. of cream, 2 qts. of milk and a very little cinnamon water. Let the whole simmer one minute, not stirring but keeping mixture in motion by gently moving around the pan. Freeze in the usual way. As this makes quite a quantity, one-fourth of the amount will be found sufficient for a small family.

Coffee Ice Cream.—One quart of good cream, ½ pt. strong coffee, 14 ozs. powdered sugar, yolk of 6 eggs; mix well sugar, eggs and cream; put into the freezer; stir thoroughly. When half frozen, add the coffee. Beat very hard and freeze.

Vanilla Ice Cream.—Cut a vanilla bean into small pieces, boil it in a teacup of fresh milk; when it cools add to 2 qts. of sweet, thick cream (first strain the boiled milk; sweeten with 2 heaping cups powdered sugar; beat to a stiff froth. Put the cream into a freezer and when it begins to freeze, stir from the sides with a large spoon or paddle, beating very hard. Beat every time the freezer is opened.

French Vanilla Ice Cream.—One quart of very rich, sweet cream, ½ lb. granulated sugar and the yolks of 6 eggs. Put the cream and sugar in a porcelain kettle over the fire; when they have come to a boil strain through a hair sieve, then add the eggs, well beaten, slowly to the cream and sugar while hot; stir rapidly. Place cn the fire again; stir a few minutes; pour into the freezer and flavor with a teaspoonful of vanilla extract.

Lemon Ice Cream.—Take 1 qt. sweet, rich cream, 8 oz. powdered sugar, 3 whole eggs, 1 teaspoonful extract of lemon; put on the fire and stir constantly until it begins to boil; then remove and strain into the freezer.

Nesselrode Ice Cream.—Take 1 lb. chestnuts, boil until tender, peel and grate, then mix well with a pint of fresh milk. Beat until light the yokes of 13 eggs, add to them 1½ lbs. powdered sugar, also 3 pts. of boiling cream in which you have boiled a vanilla bean and 4 oz. chocolate. Strain and stir until cold. Add apricot marmalade and any kind of candied fruits that may be preferred, chopped fine. Then freeze very gently.

Italian Orange Ice Cream.—To 1 pint of the best cream add 12 ozs. powdered sugar. Take the juice of six oranges and strain; grate the rinds of three of the oranges and put in a muslin bag; soak in the orange juice and squeeze the bag often, giving color to the juice. Add the yolks of 8 eggs well beaten. Add all the ingredients and flavor with a teaspoonful of orange extract; then put in the freezer and freeze.

Fruit Ice Cream.—Procure well ripened fruit, pick and clean thoroughly and put into an earthen bowl; mash the fruit with a wooden spoon and pass through a fine sieve. Sweeten to taste and to 1 pt. fruit juice add the same of sweet, rich cream, well whipped. Mix the cream and juice, beating again for three or four minutes. In sweetening the cream it is best to allow about a teacupful of sugar to each quart. Freeze and serve.

Tutti Frutti Ice Cream.—Add to 1 lb. powdered sugar, 2 qts. pure rich cream; beat 4 eggs very light and add to the above, mixing well; put the whole on the fire and stir until it begins to boil; remove from the fire and stir 2 minutes; season with vanilla. Put into a freezer and when about half frozen add to it 1 lb. preserved fruits in equal parts cut in small pieces—cherries, peaches, pineapples, apricots, etc. Mix well with the cream and freeze.

Pistachio Ice Cream.—Blanch and grate 1 lb. pistachio nuts. Put 1 qt. of spinach into a kettle and boil, drain and pound until reduced to a pulp. Squeeze the juice out through a flannel cloth. Put ½ gal. cream and 1 lb. sugar on to boil; stir until sugar dissolves, then set aside to cool. When cold add the nuts, flavoring and ½ gal. more of rich cream. Mix in the spinach juice to color. Place in the freezer and freeze. When hard remove the paddle from the freezer; beat the cream and set aside to harden.

Bique Ice Cream.—Take 3 pts. of very rich cream and 1 qt. of fresh clabber; boil in a teacup of sweet milk 1 vanilla bean; sweeten to taste. Add 1 can condensed milk. Churn 3 minutes and freeze.

Bisque.—To 1 gal. of very rich boiled custard add 3½ lbs. macaroon almonds; the latter must be put in before removing custard from the fire. When cold, freeze.

Pineapple Sherbet.—Grate 2 pineapples. Boil together 1 qt. of granulated sugar and 2 qts. of water; when thick pour it over the grated pineapples. Add the whites of 4 eggs beaten very stiff and the juice of 2 lemons. Freeze.

Milk Sherbet.—Sweeten 1 qt. rich milk to suit your taste; flavor with vanilla and freeze. When nearly frozen squeeze the juice of 1 lemon into the sherbet and stir with a large spoon. Continue to freeze until solid enough.

Lemon Ice.—One qt. water, juice of 4 lemons, 1 lb. sugar; strain the syrup and when ready to freeze beat the whites of 3 eggs to a stiff froth and add.

Lemon Sherbet.—Mix with the juice of 6 lemons, 1¾ lbs. good white sugar. Pour over the rinds of the lemons 2 qts. of boiling water. Stir the water into the sugar and juice. Beat the whites of 5 eggs to a stiff froth. Put the whole into the freezer and when slightly frozen add 1 pt. good cream and stir well. Then freeze.

Pink Sherbet.—Take 1 pt. currant jelly and dissolve in 1½ qts. boiling water; 2 cups sugar, juice of 3 lemons, dissolve well, strain through a fine cloth and freeze. Plum or grape jelly will answer in place of the currant. When over half frozen add the whites of 4 eggs well beaten. For parties, dinners, etc., it is well to make both white and pink sherbets and serve same on each dish. It gives a pleasing variety.

Orange Ice.—Squeeze the juice of 6 good oranges and 2 lemons; pour over the peel and pulp 5 gills of boiling water and allow to cool. Strain and add the water to the orange and lemon juice. Sweeten to suit the taste and freeze.

Pineapple Ice.—Grate fine 1 pineapple, strain through a sieve; add the juice of 2 lemons, 1 cup of water and sweeten to taste. Strain and freeze.

Raspberry Ice.—Mix with the juice of 1 qt. ripe raspberries, ½ pint juice of ripe currants; 1¾ lbs. of fine white sugar; 3 pts. water and juice of 2 lemons. Strain, mix well and freeze. All juicy fruits may be frozen in this manner.

Currant Ice.—To 1 pt. currant juice add 1 lb. of sugar, 1 pt. of water. When partly frozen add the whites of 2 eggs well beaten and freeze.

Apricot Ice.—Take 2 doz. apricots, pare and grate, blanching a few of the kernels. When well pounded add to the fruit. Pour over this 1 pt. water and the juice of 1 lemon. Let stand 1 hour and strain, adding 1 lb. sugar as you begin to freeze it.

Apricot Ice.—Over one box of gelatine put enough cold water to cover, let stand 1 hour, then add 1 qt. boiling water, the juice of 6 or 8 lemons and sugar to suit taste. Stir well, strain through a clean cloth and set aside to cool. To the above add one can of apricots or fresh fruit if it is procurable—the fresh fruit should be peeled and run through a sieve. Mix well together and freeze. When the ice begins to harden add the beaten whites or 4 eggs. In case of canned fruit use also the juice.

Ambrosia.—Peel and slice fresh oranges round, and pineapple sliced thin; put in a deep dish alternate layers of orange, pineapple and grated cocoanut. Begin with the oranges using cocoanut last. Spread between each layer powdered sugar. Add sugar to the milk of the cocoanut and pour over the dish.

Frozen Strawberries.—Mash fine ripe berries and make somewhat sweeter than for the table. As soon as the juice is drawn out freeze and serve with cream or ice cream.

Frozen Peaches.—Mix well together 2 qts. fresh milk and 2 teacups of good sugar. Put into a freezer and when partially frozen stir into it 1 qt. of peaches mashed and sweetened; mix together well and continue freezing.

Biscuit Glacé.—Cool 1 pt. of syrup until it is quite thick; add 3 gills of peach pulp colored pink with cochineal, 15 yolks of eggs, 1 gill of noyeau; ½ pt. thick cream and a little chocolate water ice, made with half a pint of syrup and 4 ozs. of the best chocolate mixed and frozen.

Mélange Glacé.—Take the juice and grated rind of 4 oranges, the juice and grated rind of 4 lemons, 4 bananas broken in pieces (do not use a knife about the bananas); mix with a liquid made of 2 qts. very hot water, 4 cups or more of sugar; ½ box gelatine; all the ingredients brought to a boil on the stove. Set on the ice until thoroughly chilled and then freeze. When about half frozen add 1 qt. sweet cream whipped to a stiff froth with the whites of 6 egs. Then freeze very hard and leave for several hours. Other fruits may be added or substituted. Fruit juices may also be used but in that case reduce the amount of water by the amount of juice used.

Special Whipped Cream.—To 1 pt. of sweet cream add the whites of 3 eggs beaten to a stiff froth, 5 tablespoons of sweet fruit juice, 3 of powdered sugar, 1 teaspoon of lemon extract. Mix all together and whip until it stands solid. Remove the froth as it rises with a spoon and put it on an inverted sieve with a dish under it to catch that which drains through and whip that which drains through again. Keep on ice or in a very cool place.

Banana Cream.—Peel fresh bananas and mash very fine, allowing equal quantities of bananas and cream; to every qt. use ¼ lb. sugar. Beat very hard all together until light.

Strawberry Acid.—Dissolve in 1 qt. pure water 2 ozs. citric acid and pour the solution on as many ripe strawberries stripped from their stems as it will just cover; in 24 hours drain the liquid closely from the fruit and pour it over as many fresh strawberries as it will cover, keeping in a cool place. The next day drain the liquid again entirely from the fruit and boil it gently three or four minutes with its own weight of very fine sugar, which should be dissolved in the juice before it is placed on the fire. Boil in an enameled pan. When perfectly cold put in small dry bottles closely corked and store in a cool place. It is a delicious flavoring of a beautiful color.

Raspberry Vinegar.—Take 6 lbs. ripe raspberries and pour on them 4 pts. of the best vinegar. Leave 4 days, frequently stirring without mashing the fruit or bruising the seeds; then place a piece of freshly washed linen or flannel in a colander and filter. To each pint of juice add 2 lbs. loaf sugar; put into a glazed jar or pan, which place in boiling water and keep there until the juice boils thick and syrupy. Let it become cold and bottle. The whole process should be carried on in a glazed kettle or earthen vessel. Other small fruits may be treated in the same way.

Chamomile Tea.—Use 1 pt. boiling water to about 30 chamomile flowers. Steep, strain, sweeten with honey or sugar and drink a cupful half an hour before breakfast to promote digestion and restore the action of the liver. A teacupful of the tea in which has been stirred a full dessert spoonful of sugar and a very little ginger is an excellent tonic and stimulant for aged persons.

Barley Water.—Wash 2½ ozs. of pearl barley and boil in ½ pt. water for a short time. Throw this water away and pour on the barley 4 pts. hot water; boil slowly down to 2 pts. and strain. Soothing and nourishing in fevers and in inflammations of the mucous surfaces. To make the above laxative boil 2 pts. barley water with 2½ ozs. sliced figs, 4 drachms of bruised fresh licorice, 2 ½ ozs. raisins and 1 pt. water; boil down to 2 pts. and strain.

Infusion of Roses.—Put 3 drachms of dried red rose leaves into 1 pt. boiling water and add 1½ fluid drachms of diluted sulphuric acid. Macerate for 2 hours and strain the liquor; add 6 drachms of sugar. It has an astringent, cooling and antiseptic effect: used as a drink in fevers it amounts to 1½ to 2 ozs., and also as a vehicle for sulphate of magnesia (Epsom Salts), quinine, etc.

Tests for Impurities in Water.—To tell if water is hard or soft dissolve soap in alcohol and drop a little in a glass of water; it will become more or less milky according to the hardness of the water. **Test for Iron.**—A crystal of prussiate of potash dissolved in water containing iron will turn it blue. **Test for Copper**—A few drops of liquid ammonia will turn it blue. **Test for Lead**—Add a little sulphuret of ammonia or potash. If there is lead in solution, water will become dark brown or of a brackish hue.

Coloring for Fruits, Etc.—Red or pink coloring may be made by taking a small quantity of cochineal and bruising it with the blade of a knife. Put it into half a teacupful of alcohol. Let it stand a quarter of an hour and then filter through fine muslin. Cork the bottle tight. Strawberry or cranberry juice makes a fine coloring for frostings, puddings and confectionery.

Deep Red Coloring.—Take 20 grains cochineal and 15 grains of cream of tartar finely powdered; add to them a piece of alum the size of a cherrystone and boil with a gill of soft water in an earthen vessel slowly for half an hour. Then strain it through muslin and keep it tightly corked in a phial.

Yellow Coloring.—Take a little saffron, put into an earthen vessel with a very small quantity of cold, soft water and let it steep until the infusion is a bright yellow; then strain and add ½ alcohol. To color fruit yellow, boil it with fresh lemon skins in water sufficient to cover until it is tender; then spread on dishes to cool.

Green Coloring.— Take fresh spinach or beet leaves and pound them in an earthen or marble mortar. If you want it for immediate use take off the green froth as it rises and mix it with the article you intend to color. If you wish to keep it a few days take the juice when you have pressed out a teacupful, and adding to it a piece of alum the size of a pea allow it to boil in a saucepan.

Sugar Grains Colored.—Sugar grains are made by pounding white lump sugar in a mortar and passing through sieves of different degrees of coarseness, thus accumulating grains of different sizes. They are used in ornamenting cakes, etc. Stir a little coloring such as the essence of spinach, prepared cochineal, liquid carmine, indigo, rouge, saffron, etc., into the sugar grains made as above, until each grain is stained, then spread them on a baking sheet and dry them in a warm place.

To Clarify Jellies, Etc.—The white of eggs is perhaps the best substance to use in clarifying jellies and some liquids, for the reason that when albumen (and the white of egg is nearly pure albumen) is put into a liquid that is muddy from substances suspended in it, on boiling the liquid the albumen coagulates, and, entangling with the impurities, rises to the surface with them as a scum, or sinks to the bottom according to their weight.

Confectionery.—In the making of confections the best granulated or loaf sugar should be used. Beware of glucose mixed with sugar. Sugar is boiled more or less according to the candy to be made, and it is necessary to understand the proper degree of boiling to operate it successfully. Occasionally sugar made into candies, syrups or creams will need clarifying, as follows: Beat up well the white of an egg with a cup of cold water and pour it into a very clean or thick new tin saucepan; then put into the pan 4 cups of sugar mixed with a cup of warm water. Put on the stove and heat moderately until the scum arises. Remove the pan and skim off the top, then place on the fire again until the scum arises and repeat until there is no more scum.

French Cream Candy.—Put 4 cups of white sugar and one cup of water into a bright tin pan on the range and let it boil without stirring for 10 minutes. If it looks somewhat thick test it by letting some drop from the spoon, and if it threads remove the pan to the table. Take out a small spoonful and rub it against the side of a cake bowl; if it becomes creamy and will roll into a ball between the fingers, pour the whole into the bowl. When cool enough to bear your finger in it, stir or beat it with a large spoon or pudding stick. It will soon begin to look like cream and will grow stiffer until you find it necessary to take your hands and work it like bread dough. If it is not boiled enough to cream set it back on the range for one or two minutes, or as long as necessary taking care not to cook it too much. Add the flavoring as soon as it begins to cool. This is the foundation of all French creams. It can be made into rolls and sliced off or cut into small cubes or made into any shape imitating French candies. A pretty form is made by coloring some of the cream pink, taking a piece about as large as a filbert and crowding an almond meat half way into one side, till it looks like a bursting kernel. In working should the cream get too cold, warm it. When the boiled sugar is cool enough to beat, if it looks rough and has turned into sugar, it is because it has been boiled too much or has been stirred. If, after it is beaten, it does not look like lard or thick cream, and is sandy or sugary instead, it is because you did not let it get cool enough before beating. It is not boiled enough if it does not harden so as to work like dough and should not stick to the hands; in this case put it back in the pan with an ounce of hot water and cook over just enough by testing in water, as above. After it is turned into the bowl to cool it should look clear as jelly.

Walnut Creams.—Take a piece of French cream the size of a walnut. Having cracked some English walnuts, place one-half of each nut upon each side of the ball, pressing them into the ball.

Chocolate Creams.—Use French cream and work it into small cone-shaped balls with the fingers. Lay them on paper to harden until all are formed. Melt 1 cake of baker's chocolate in an earthen dish or small basin; by setting it in the oven it will soon melt; do not let it cook, but it must be kept hot. Take the balls of cream one at a time on the tines of a fork, pour the melted chocolate over them with a teaspoon, and when well covered slip them from the fork onto oiled paper.

Maple Sugar Creams.—Grate fine maple sugar and mix in quantity to suit the taste with French cream; make any shape desired. Walnut creams made with maple sugar are very fine.

Cocoanut Creams.—Take 2 tablespoons of grated cocoanut and half as much French Cream; work them together with your hand until the cocoanut is well mixed in. If you choose you can add a drop of vanilla. If too soft to work into balls, add confectioners' sugar to stiffen.

Chocolate Caramels.—One cup of grated chocolate, 2 cups of brown sugar, 1 cup of West India molasses, 1 cup of milk or cream, butter the size of an egg, boil until thick, almost brittle, stirring constantly. Turn it out onto buttered plates and when it begins to stiffen, mark it in small squares so that it will break easily when cold. Some like it flavored with a teaspoon of vanilla.

Grilled Almonds.—A delicious candy seldom met with outside of France. Its novel flavor will repay the trouble of making. Blanch a cupful of almonds, dry them thoroughly. Boil 1 cup sugar and ¼ cup of water till it "hairs," then throw in the almonds; let them fry as it were in this syrup, stirring them occasionally; they will turn a faint yellow brown before the sugar changes color. Do not wait an instant once this change of color begins, or they will lose flavor; remove them from the fire and stir them until the syrup has turned back to sugar and clings irregularly to the nuts. Grilled almonds are very nice to alternate at dinners with salted almonds.

Peppermint Drops.—Crush fine 1 cup of sugar and just moisten with boiling water; boil 5 minutes, then take from the fire and add cream of tartar the size of a pea; mix well and add 4 or 5 drops oil of peppermint. Beat briskly until the mixture whitens, then drop quickly upon white paper. Have the cream of tartar and oil of peppermint measured while the sugar is boiling. If it sugars before it is all dropped, add a little water and boil a minute or two.

Stick Candy.—To 1 lb. granulated sugar add 1 cup of water, ¼ cup of vinegar, or ½ teaspoon cream tartar, 1 small tablespoon of glycerine. Flavor with vanilla, rose or lemon. Boil all except the flavoring, without stirring, 20 minutes or ½ hour, or until crisp when dropped into water. Just before pouring on greased platters to cool add ½ teaspoon of soda. After pouring on platters to cool pour 2 teaspoons of flavoring over the top. When partly cool pull it until very white. Draw it into sticks the size you wish and cut off with shears. It may be colored if desired.

Currant Drops.—Use currant juice instead of water to moisten a quantity of sugar. Put it in a pan and heat, stirring constantly; be sure not to let it boil; then mix a very little more sugar and let it warm with the rest a moment; then with a smooth stick, drop on paper.

Lemon Drops.—Upon a cupful of powdered sugar pour just enough lemon juice to dissolve and boil to the consistency of thick syrup, and so that it appears brittle when dropped in cold water. Drop this on buttered plates in drops and set away to cool and harden.

Sugar Nut Candy.—Take 3 lbs. white sugar, ½ pt. water, ½ pt vinegar, ¼ lb. butter, 1 lb. hickory nut kernels. Put the sugar, butter, vinegar and water together into a thick saucepan. When it begins to thicken add the nuts. To test it take up a very small quantity from the center, taking care not to disturb it any more than is necessary. Drop into cold water and if the little particles are brittle, remove from the fire at once. Pour into buttered plates. Use any nuts with this recipe.

Hoarhound Candy.—Boil two ozs. dried hoarhound in 1½ pts. of water for about half an hour; strain and add 3½ lbs.

brown sugar; boil over a hot fire until sufficiently hard; pour out in flat, well greased tins and mark into sticks or small squares with a knife as soon as cool enough to retain its shape.

Fig Candy.—One cup of sugar, 1/3 cup of water, ¼ teaspoon cream tartar. Do not stir while boiling. Boil to amber color, and stir in the cream of tartar just before taking from the fire. Wash the figs, open and lay in a pan and pour the candy over them. Or a syrup may be made of the sugar and water and the figs dipped in it.

Fruit and Nut Creams.—Raisins seeded, currants, figs and citron chopped fine and mixed with the uncooked French cream, while soft, before the sugar is all mixed in, makes a delicious variety. Nuts of any kind or several mixed together may be mixed with this cream.

Candy Roley Poley.—Take ½ pt. citron, ½ pt. raisins, ½ lb. figs, ¼ lb. shelled almonds, 1 pt. peanuts before they are hulled. Cut up the citron, stone the raisins, blanch the almonds and hull the peanuts; cut up the figs into small bits. Take 2 lbs. coffee sugar and moisten with vinegar; put in piece of butter the size of a walnut; stew till it hardens, but take it off before it gets to the brittle stage. Beat with a spoon six or eight times; then stir in the mixed fruit and nuts. Pour into a wet cloth and roll it up like a pudding, twisting the ends of the cloth to mold it. Let it get cold and slice off the pieces as they are required.

Candies Without Cooking.—Many candies are made by confectioners without boiling. The secret lies in the sugar used—the XXX powdered or confectioners' sugar. Ordinary sugar when rubbed between the thumb and finger has a decided grain, but the confectioners' sugar is fine as flour. Candies made after this process are better the day after.

Orange Drops.—Grate the rind of one orange and squeeze the juice, taking care to reject the seeds; add to this a pinch of tartaric acid; then stir in confectioners' sugar until it is stiff enough to form into balls the size of a small marble.

Buttermilk as a Drink.—Buttermilk, for so many years regarded as a waste product or used very sparingly, is coming more and more into vogue not only as a nutrient but as therapeutic agent. Buttermilk may be roughly described as milk which has lost most of its fat and a small percentage of casein, and which has become sour by fermentation. Long experience has demonstrated it to be an agent of superior digestibility. It is indeed a true milk peptone—that is milk already partially digested, the coagulation of the coagulable portions being loose and flaky and not of that firm indigestible nature which is the result of the action of gastric juice upon sweet milk. It resembles koumiss in its nature and with the exception of that article, is the most grateful, refreshing and digestible of the products of milk. It is a laxative to the bowels, a fact good to bear in mind in the treatment of typhoid fever, and which may be turned to advantage in the treatment of habitual constipation. It is a diuretic and may be prescribed with advantage in some kidney troubles. Owing to its acidity, combined with its laxative properties, it is believed to exercise a general impression on the liver. It is well adapted to many cases where it is customary to recommend lime water and milk. It is invaluable in the treatment of diabetes, either exclusively or alternating with skimmed milk. In some cases of gastric ulcer and cancer of the stomach it is the only food that can be retained.

Pineappleade.—Pare and slice some very ripe pineapples; then cut the slices into small pieces. Put them with all their juice into a large pitcher and sprinkle among them plenty of powdered sugar. Pour on boiling water, allowing a small half pint to each pineapple. Cover the pitcher and let it stand until quite cool, occasionally pressing down the pineapple with a spoon. Set the pitcher for awhile in ice. Lastly, strain the infusion into another vessel and transfer it to tumblers, putting into each glass some more sugar and a bit of ice. This beverage will be found delicious.

YEASTS.—Hop Yeast.—Hops, 1 oz.; water, 3 pts.; flour, 1 teacup; brown sugar, 1 tablespoon; salt, 1 teaspoon; bakers' yeast, 1 gill.

Boil the hops twenty minutes in the water, strain into a jar, and stir in the flour, sugar and salt, and when a little cool add the yeast, and after four or five hours cover up and stand in a cool place or on the ice for use.

The above makes a good family yeast, but the following is the regular bakers' yeast, as they always keep the salt on hand:

Bakers' Yeast.—Hops, 2 oz.; water, 1 gal.; wheat flour, ½ lb.; malt flour, 1 pt.; stock yeast, ½ pt.

Boil the hops for thirty minutes in the water, strain, and let cool until you can well bear your hand in it; then stir in the flour and yeast; keep in a warm place until the fermentation is well under way, and then let it work in a cooler place six to eight hours, when it should be put in pint bottles about half full, and closely corked, and tied down. By keeping this in a very cool cellar, or ice-house, it will keep for months, fit for use. But as it is often troublesome to obtain yeast, to start with, I give you the "Jug Yeast," starting without yeast.

Jug Yeast, Without Yeast to Start With.—Hops, ½ lb.; water, 1 gal.; fine malt flour, ½ pt.; brown sugar, ½ lb.

Boil the hops in the water until quite strong, strain and stir in the malt flour; and strain again through a coarse cloth, and boil again for ten minutes; when lukewarm, stir in the sugar and place in a jug, keeping it at the same temperature until it works over; then cork tight, and keep in a cold place.

Yeast Cake.—Good sized potatoes, 1 doz.; hops, 1 large handful; yeast, ½ pt.; cornmeal sufficient quantity.

Boil the potatoes, after peeling, and rub them through a colander; boil the hops in two quarts of water, and strain into the potatoes; then scald sufficient Indian meal to make them the consistence of emptyings, and stir in the yeast and let rise; then, with unscalded meal, thicken, so as to roll out and cut into cakes, drying quickly, at first, to prevent souring. They keep better and soak up quicker than if made with flour.

MEDICAL DEPARTMENT.

I would give an introductory word of Caution in this Department.

Whenever you buy an article of medicine which is not regularly labeled by the Druggist, have him, in all cases, write the name upon it. In this way you will not only save money, but perhaps life. Arsenic, phosphorus, laudanum, acids, etc., should always be put where children cannot get at them. And always purchase the best quality of drugs to insure success.

ALCOHOL—In Medicines, Preferable to Brandy, Rum, or Gin, of the Present Day.—There is no one thing doing so much to bolster up the tottering yet strong tower of Intemperance, as the old Fogy Physicians, who are constantly prescribing these articles to their patients, and one-half of the reason for it is to cover the faults of their own constant use of these beverages. This unnecessary call for these articles thus used as a medicine keeps up a large demand; and when we take into consideration the almost impossibility of obtaining a genuine article, the sin of prescribing them becomes so much the greater, when it is also known by all really scientific men that with alcohol (which is pure) and the native fruit wines, cider, and cider wines, that all the indications desired to be fulfilled in curing disease can be accomplished without their use.

Then, when it is deemed advisable to use spirits to preserve any bitters or syrups from souring, instead of 1 qt. of brandy, rum or gin, use the best alcohol, ½ pt., with about 2 or 3 ozs. of crushed sugar for this amount, increasing or lessening according to the amount desired in these proportions. If a diuretic effect is desired, which is calculated to arise where gin is prescribed, put 1 dr. of oil of juniper into the alcohol before reducing with the water; or if the preparation admits of it you may put in from 1 to 2 ozs. of juniper berries instead of the oil. If the astringent effect is desired, as from brandy, use, say, ¼ oz. of gum kino or catechu, either, or a half of each may be used. If the sweating or opening properties are required, as indicated by the prescription of rum, sweeten with molasses in place of the sugar, and use 1 dr. of oil of caraway, or 1 to 2 ozs. of the seed for the above amount, as the juniper berries for gin.

If the strength of wine only is desired, use 1 qt. of ginger wine, or if that flavor is not fancied, use any other of the wines as preferred by the patient.

But no one should use any of the descriptions of alcohol as a constant beverage, even in medicine, unless advised to do so by a physician who is not himself a toper.

If families will follow the directions above given, and use proper care with some of the various fruit wines, cider, etc., as given in this book for medical use, which are often used in prescriptions, they would seldom ,if ever, be obliged to call for the pretended pure brandies, rums, gins, etc., of commerce, and intemperance would die a natural death for want of support.

And you will please allow me here to correct a common error, with regard to the presence of alcohol in wines. It is generally supposed that wine made from fruit, without putting some kind of spirits into it, does not contain any alcohol; but a greater mistake does not exist in the world. Any fruit, the juice of which will not pass into the vinous fermentation by which alcohol is produced, will not make wine at all.

There is no wine, of any note, containing less than 10 parts of alcohol to 100 parts of the wine; and from that amount up to 25½ parts; currant, 20½; gooseberry, 11¾; porter, 4½; even small beer, 1¾ parts or qts. to 100 qts.

So it will be seen that every quart of fruit wine not made for medicine, or sacramental purposes, helps to build up the cause (intemperance) which we all so much desire not to encourage. And for those who take any kind of spirits for the sake of the spirit, let me give you the following:

2. **Spiritual Facts.**—That whis-key is the key by which many gain entrance into our prisons and almshouses.

3. That brandy brands the noses of all those who cannot govern their appetites.

4. That punch is the cause of many unfriendly punches.

5. That ale causes many ailings, while beer brings to the bier.

6. That wine causes many to take a winding way home.

7. That cham-pagne is the source of many real pains.

8. That gin slings have "slewed" more than slings of old.

AGUE MEDICINES.—**Dr. Krieder's Pills.**—Quinine, 20 grs.; Dover's powders, 10 grs.; sub-carbonate of iron, 10 grs.; mix with mucilage of gum arabic and form into 20 pills. Dose—Two, each hour, commencing 5 hours before the chill should set in. Then take one night and morning, until all are taken.

I cured myself of Ague with this pill after having it hang onto me for three years with all the common remedies of the day, five weeks being the longest I could keep it off, until I obtained the above pill. This was before I had studied medicine. I have cured many others with it also, never having to repeat the dose only in one case.

In attacks of Ague, it is best to take an active cathartic immediately after the first "fit," unless the bowels are lax, which is not generally the case, and by the time the cathartic has worked off well, you will be prepared to go ahead with the "cure" as soon as you know its periodical return.

2. For very young children, nothing is better than 5 or 6 grs. of quinine in a 2 oz. vial with 1 tablespoon of white sugar, then

fill with water. **Dose**—A teaspoon given as above, as to time. A thick solution of licorice, however, hides the taste of the quinine quite effectually.

3. **Ague Bitters.**—Quinine, 40 grs.; capsicum, 20 grs.; cloves, ¼ oz.; cream of tartar, 1 oz.; whisky, 1 pt.; mix. **Dose**—1 to 2 tablespoons every 2 hours, beginning 8 hours before the chill comes on, and 3 times daily for several days. Or, if preferred without spirits, take the following:

4. **Ague Powder.**—Quinine, 10 grs.; capsicum, 4 grs.; mix and divide into 3 powders. **Directions**—Take one 4 hours before the chill, one 2 hours, and the third 1 hour before the chill should commence, and it will seldom commence again. Or

5. **Ague Mixture Without Quinine.**—Mrs. Wadsworth, a few miles south of this city, has been using the following Ague mixture over twenty years, curing, she says, more than forty cases, without a failure. She takes—

Mandrake root, fresh dug, and pounds it; then squeezes out the juice, to obtain 1½ tablespoons, with which she mixes the same quantity of molasses, is dividing into 3 equal doses of 1 tablespoon each, to be given 2 hours apart, commencing so as to take all an hour before the chill.

It sickens and vomits some, but she says it will scarcely ever need repeating. Then steep dogwood bark (some call it boxwood), make it strong and continue to drink it freely for a week or two at least.

6. **Ague Cure, by a Clairvoyant.**—There is no doubt in my mind but what there is much virtue in the following clairvoyant prescription, for I have knowledge of the value of one of the roots. See Cholic remedy:

Blue vervain, leaf and top, 1 lb.; bone-set, ¼ lb.; best rye whisky, 1 gal.

The dose was not given, but most persons would take a wine glass five or six times daily.

7. **Ague Cured for a Penny.**—It has been discovered that nitric acid is of great value in the treatment of Intermittent Fever or Ague. A physician administered tne article in twenty-three cases of such fever, and it was successful in all but one, in interrupting the paroxysms, and there occurred no relapse.

In the majority of cases, 5 or 6 drops of the strong acid, given in a little gum mucilage, every 2 hours, until 60 drops had been taken, were found sufficient to break the fever, and restore the patient to health. The foregoing confirms the following:

8. **Ague Anodyne.**—Muriatic acid and laudanum, of each ½ oz.; quinine, 40 grs.; brandy, 4 ozs. Take teaspoon 9, 6 and 2 hours before the chill, until broken; then at 7, 14 and 21 days after, take 3 doses, and no relapse will be likely to occur.

I am well satisfied that any preparation of opium, as laudanum, morphine, etc., which affect the nerves, is valuable in ague medicine, from its intimate connection with, if not entirely confined to, the nervous system; hence the advantage of the first Ague pill, the opium being in the Dover's powder.

I have given this large number of preparations, and follow with one or two more, from the fact that almost every physician will have a peculiar prescription of his own, and are generally free to contribute their mite for the benefit of the world; and as I have seen about as much of it as most book-makers, I have come in for a large share. The nature of the articles recommended are such also as to justify their insertion in this work.

9. **Febrifuge Wine.**—Quinine, 25 grs.; water, 1 pt.; sulphuric acid, 15 drops; epsom salts, 2 ozs.; brandy, 1 gill; loaf sugar, 2 ozs.; color with tincture of red sanders. **Dose**—A wineglass 3 times per day.

This is highly recommended by a regular practicing physician, in one of the ague holes (Saginaw) of the west. It, of course, can be taken without any previous preparation of the system.

10. **Tonic Wine Tincture.**—A positive cure for Ague without quinine. Peruvian bark, 2 ozs.; wild cherry tree bark, 1 oz.; cinnamon, 1 dr.; capsicum, 1 teaspoon; sulphur, 1 oz.; port wine, 2 qts. Let stand a week, shaking occasionally. All the articles are to be pulverized. **Dose**—A wine-glass every 2 or 3 hours through the day until broken, then 2 or 3 times per day until all is used.

Always buy your Peruvian bark, and pulverize it yourself, as most of the pulverized article is greatly adulterated. This is the reason why more cures are not performed by it.

11. **Soot Coffee**—Has cured many cases of ague, after "everything else" had failed; it is made as follows:

Soot scraped from a chimney (that from stove pipes does not do), 1 tablespoon, steeped in water, 1 pt., and settled with 1 egg beaten up in a little water, as for other coffee, with sugar and cream, 3 times daily with meals, in place of other coffee.

It has come in very much to aid restoration in Typhoid Fever, bad cases of Jaundice, Dyspepsia, etc., etc.

Many persons will stick up their noses at these "Old Grandmother prescriptions," but I tell many "upstart Physicians" that our grandmothers are carrying more information out of the world by their deaths than will ever be possessed by this class of "sniffers," and I really thank God, so do thousands of others, that He has enabled me, in this work, to reclaim such an amount of it for the benefit of the world.

12. Balmony, 1-3 of a pint basin of loose leaves, fill with boiling water and steep; drink the whole in the course of the day, and repeat 3 or 4 days, or until well.

It has cured many cases of Ague. It is valuable in Jaundice, and all diseases of the Liver; and also for worms, by the mouth and by injection. It is also valuable in Dyspepsia, Inflammatory and Febrile diseases generally.

NIGHT SWEATS.—To Relieve.—After Agues, Fevers, etc., and in Consumption, many persons are troubled with "Night Sweats;" they are caused by weakness or general debility. For its relief:

Take Ess. of tansy, ½ oz.; alcohol, ¼ oz.; water, ¼ oz.; quinine, 15 grs.; muriatic acid, 30 drops; mix. **Dose**—1 teaspoon, in a gill of cold sage tea.

It should be taken two or three times during the day, and at bedtime; and the cold sage tea should be used freely as a drink also until cured. It will even cure Ague also by repeating the above dose every hour, beginning twelve to fifteen hours before the chill.

Fevers—General Improved Treatment for Bilious, Typhoid and Scarlet Fevers Congestive Chills, etc. Also Valuable in Diarrhoea, Summer Complaint, Cholera-Infantum, and All Forms of Fever in Children.—The symptoms of Fever are generally understood, yet I will give the characteristic features by which it will always be detected: Cold chills, followed by a hot skin; a quickened pulse, with a weak and languid feeling of distress; also loss of appetite, thirst, restlessness, scanty excretions; in fact, every function of the body is more or less deranged. Of course, then, that which will restore all the different machinery to healthy action will restore health. That is what the following febrifuge has done in hundreds of cases—so attested by "Old Doctor Cone," from whose work on "Fevers and Febrile Diseases" I first obtained the outlines of the treatment, and it gives me pleasure to acknowledge my indebtedness to him through fourteen years of neighborhood acquaintance, always finding him as willing to communicate, as qualified to practice, and daring, in breaking away from "Medical Society Rules," to accomplish good.

Febrifuge for Fevers in General.—Carbonate of ammonia, 2 drs.; alum, 1 dr.; capsicum, foreign gentian, colombo root, and Prussiate of iron, all pulverized, of each, ½ dr.; mix by putting into a bottle, adding cold water, 4 ozs. **Dose**—One teaspoon to a grown person every 2 hours in common cases of fever. It may be sweetened if preferred. Shake well each time before giving, and keep the bottle tightly corked.

The philosophy of this treatment is the carbonate of ammonia neutralizes the acidity of the stomach, and determines to and relaxes the surface; and with the capsicum is a hundred per cent more efficient. The alum constringes, soothes and aids in relieving the irritated and engorged mucous membrane of the stomach, and finally operates as a gentle laxative. The colombo and gentian are gently astringent and stimulating, but chiefly tonic, and the Prussiate of iron is tonic; and in their combination are (as experience will and has proved) the most efficient and safe Febrifuge, in all forms and grades of fever, yet known. We therefore wish to state that, after twenty-five years' experience in the treatment of disease, we have not been able to obtain a knowledge of any course of treatment that will begin to compare with that given above, for the certain, speedy and effectual cure of all forms of fever; and all that is requisite is to have sufficient confidence in the course of treatment recommended; to use it from three to five, and in extreme cases seven, days, as directed, and that confidence will be inspired in all who use it, whether Physician (if unprejudiced) or patient, or the heads of families; remember all processes in nature require time for their accomplishment.

After the patient has been twenty-four hours without fever, or if the patient be pale, blanched, with a cool surface and feeble pulse, at the commencement of fever, prepare the following:

2. **Febrifuge Tea.**—Take Virginia snake root and valerian root, of each 2 drs.; boiling water, 1 pt. Pour the boiling water on the roots and steep ½ an hour, and give a teaspoon of the Febrifuge and a tablespoon of this Tea together every 2 hours, and after he has been another 24 hours without fever, give it every 3 or 4 hours, until the patient has good appetite and digestion, then 3 times daily, just before meals, until the patient has gained considerable strength, when it may be entirely discontinued; or he may continue the simple infusion to aid digestion.

A strong tea of wild cherry bark makes the best substitute for the snake root tea, and especially if mercury has been previously used in the case, and if it has, it is best to continue the cherry bark tea until the patient is entirely recovered.

A patient using this treatment, if bilious, may vomit bile a few times, or if there is congestion of the stomach, he will probably vomit occasionally for a few hours, but it will soon subside. It will not purge, except a patient be very bilious, in which case there will probably be two or three bilious discharges; but it gives so much tone to the action of the stomach and bowels as to secure regular operations; but if the bowels should not be moved in two or three days, give injections of warm water, or warm water with a little salt in it.

Give the patient all the plain, wholesome diet, of any kind, he will take, especially broiled ham, mush and rich milk, boiled rice, milk or dry toast, hot mealy potatoes, boiled or roasted, with good fresh butter, etc., etc.; and good, pure, cold water, or tea and coffee, seasoned to the taste, as drinks, and keep the person and bed clean, and room quiet and undisturbed by conversation or any other noise, and see that it is well ventilated.

If there should be extreme pain in the head when the fever is at the highest, or in the back or loins, and delirium at night, with the intolerance of light and noise; in such cases, in addition to keeping the room cool, dark and quiet, and giving the febrifuge regularly, as above directed, take the following:

3. **Fever Liniment.**—Sulphuric ether and aqua ammonia, of each 1 oz.; muriate of ammonia, ⅛ oz.; mix, and shake the bottle and wet the scalp and all painful parts, every 2 or 3 hours, until the pain abates. Keep tightly corked.

After the application of the liniment, fold a muslin cloth four or five thicknesses, dip it in cold water, and apply it to the head or any part afflicted with severe pain; or to the pit of the stomach, if there be much vomiting; and it may be renewed every three or four hours.

Besides the above treatment, dip a towel in cold water, and rub the patient off briskly and thoroughly, and be careful to omit the general sponging; but the face, neck and hands may be repeated every three or four hours, if the skin be very hot and dry; but if the surface be pale, cool, moist, livid or lead-colored, omit the general sponging; but the face, neck and hands maye be washed occasionally, but be sure to wipe perfectly dry with a clean, hot and dry towel. But if he be very pale and blanched, with a cool or cold surface, or have a white circle around his mouth and nose, or be covered with a cold, clammy perspiration, give the Febrifuge every hour, until the above symptoms disappear, giving the patient hot coffee or tea, pennyroyal, sage, balm, or mint tea, as hot as he can sup them, and as freely as possible, and make hot applications to his person, and put a bottle of hot water to the soles of his feet; and after this tendency to prostration is overcome, then give the Febrifuge once in two hours as before only.

Children will use the medicine in all respects as directed for grown persons, giving to a child one year old a fourth of a teaspoon, or fifteen drops; if under a year old, a little less (we have frequently arrested Cholera Infantum with the Febrifuge in children under six months old, and in some instances under a month old), and increase the dose in proportion to the age above a year old, giving half a teaspoon from six to ten years old, and so on; and be sure to offer children some food several times a day, the best of which is broiled smoked ham, good stale wheat bread boiled in good rich milk, mush and milk, boiled rice, etc.; but animal diet agrees best, and especially in cases of Summer Complaint, or Cholera Infantum, the diet had better be almost exclusively animal. It will be difficult to use the infusion of snake root with children that are too young to obey the mandate of parents, and the Febrifuge may be made sweet, with white or loaf sugar, for young children, so as to cover its taste as much as possible, but older children will be benefited very much by the use of the infusion of snake root and valerian, and should take it as prescribed for adults, of course adapting the dose to the age of the patient.

4. **Note.**—The above treatment, if persevered in for a short time, is effectual in arresting Diarrhoea, Summer Complaint, Cholera Infantum, and all forms of Fever in children. Give it every two hours, or if the patient be very feeble and corpse-like, give it every hour until there is reaction, and then give it every two hours, as prescribed for fever in general, and you will be satisfied with the result after a short time.

5. **Typhoid Fever.**—If the patient be Typhoid, that is, if his tongue be brown or black, and dry in the center, with glossy red edges; if he have Diarrhoea, with thin, watery or muddy stools, and a tumid or swollen belly, he will probably have a rapid or frequent and small pulse, and be delirious and rest but little at night; under these circumstances, give the Febrifuge in the Tea, No. 2, as for fevers in general, every two hours, and give also the following:

6. **Febrifuge Balsam.**—Gum camphor, 30 grs.; balsam copaiba, sweet spirits of nitre, compound spirits of lavender, of each ½ oz.

Shake the vial, and give forty drops every four hours, in with the other medicine, until the tongue becomes moist, and the Diarrhoea is pretty well subdued, when you will discontinue this preparation and continue the Febrifuge and snake root tea, as directed for fever in general.

Note.—We do not believe that one case of fever in a thousand will develop Typhoid symptoms, unless such cases have been injured in the treatment of the first stage by a reducing course of medicine, as bleeding, vomiting, especially emetic tartar, purging, especially with calomel, and compound extract of colocynth, or oil, salts, or infusion of senna, and the common cooling powder, which is composed of saltpetre or nitre, and tartar emetic or ipecac, all of which irritate the mucous membrane of the stomach and bowels, and consequently produce determination of blood to these parts, that results in irritation, engorgement, congestion, inflammation, and consequently Typhoid Fever.

If fever is attended with Dysentery, or Blood Flux, it should be treated in the same manner precisely as Typhoid Fever, as it is nothing but Typhoid Fever with inflammation of the large, and sometimes small, bowels. The treatment given for Typhoid Fever above will cure all forms of Dysentery as it does fever, but the bloody and slimy discharges will continue for two or three days after the fever is subdued and the appetite and digestion are restored, and at times, especially if the patient discharge bile, which will be green, there will be a good deal of pain at stool, which, however, will soon subside.

7. **Scarlet Fever.**—If you have Scarlet Fever, treat it in all respects as fever in general, and if the patient's throat should show any indications of swelling, apply the Fever Liniment No. 3, and make the application of cold water in the same manner as there directed; and it had better be repeated every three or four hours until the swelling is entirely subdued, when the wet cloth should be substituted by a warm, dry, flannel one; but if the patient's throat should ulcerate, give a few drops of the Febrifuge every half hour or hour, until the dark sloughs separate, and the throat looks red and clean, when you need only give the medicine at regular intervals, as recommended for fever in general—that is, every two hours. If this treatment be pursued at the onset, the throat will seldom if ever ulcerate.

8. **Congestive or Sinking Chill.**—In case of Congestive or Sinking Chill, give the Febrifuge as directed for fever in general; but if the patient be insensible and cold, or drenched in a cold perspiration, give the Febrifuge in a tablespoon of the snake root and valerian tea every hour until the patient becomes warm, and then give it every two hours to within twelve hours of the time he anticipates another chill, when you will give the following:

9. **Stimulating Tonic.**—Sulphate of quinine, 20 grs.; pulverized capsicum, 30 grs.; pulverized carbonate of ammonia, 90 grs.; mix and put into a bottle, and add 15 teaspoons of cold water, and give a teaspoon, together with a teaspoon of the Febrifuge, every hour, either alone, or, what is better, in a teaspoon of the snake root and valerian tea, for 15 hours.

The patient should lie in bed and drink freely of pennyroyal tea, or hot coffee, or some other hot tea, and after the time has elapsed for the chill, give the same as for fever in general, until the patient is entirely recovered. The above treatment will arrest any form of Ague, and the after treatment will, with any degree of care, prevent its return. Or the Ague may be arrested most speedily by taking one grain of quinine in a teaspoon of the Febrifuge every hour for six hours preceding a paroxysm, and then pursue the above tonic course.

I have given the foregoing treatment for fevers, because I know that it is applicable in all cases, and that the articles are kept by all druggists. But there is a better, because quicker. method of cure, and I am very sorry to say that for want of knowledge in regard to the value of the medicine, it is not usually kept by Druggists. I mean the Tincture of Gelseminum. It is an unrivaled Febrifugo. It relaxes the system without permanent prostration of strength. Its specific action is to cloud the vision, give double-sightedness and inability to open the eyes, with distressed prostration; which will gradually pass off in a few hours, leaving the patient refreshed, and if combined with quinine, completely restored. To administer it:

10. Take the tincture of gelseminum, 50 drops, put into a vial, and add 5 teaspoons of water; quinine, 10 grs. Shake when used. **Dose**—One teaspoon in half a glass of sweetened water, and repeat every 2 hours.

Watch carefully its action, and as soon as you discover its specific action, as mentioned above, give no more.

Dr. Hale, of this city, one of the more liberal class of physicians (and I use the term liberal as synonymous with the term successful), prefers to add twenty-five drops of the tincture of veratrum viride with the gelseminum, and give as there directed. And in case that their full specific action should be brought on, give a few spoons of brandy, to raise the patient from his stupor, or what is preferable:

11. Carbonate of ammonia, ¼ oz.; water, 4 ozs.; mix. **Dose**—One tablespoon every 15 or 20 minutes until revived.

If Dr. Hale's addition should be used it will be found applicable in all cases of fever, except in Typhoid accompanied with its own excessive prostration; without the addition of the veratrum it is applicable in all cases of fever above described. Of course, in all cases where the fever is thus subdued, you will continue quinine, or some other appropriate tonic treatment, to perfect a cure, and prevent a relapse. And it might not be amiss here to give a plan of preparing a nourishing and agreeable lemonade for the sick, and especially for persons afflicted with fever:

12. **Lemonade, Nourishing, for Fever Patients.**—Arrow-root, 2 or 3 teaspoons rubbed up with a little cold water, in a bowl or pitcher, which will hold about 1 qt; then squeeze in the juice of half a good-sized lemon, with 2 or 3 tablespoons of white sugar, and pour on boiling water to fill the dish, constantly stirring whilst adding the boiling water.

Cover the dish, and when cold it may be freely drank to allay thirst, as also to nourish the weak, but some will prefer the following:

13. **Prof. Hufeland's Drink for Fever Patients or Excessive Thirst.**—Cream of tartar, ½ oz.; water, 3 qts.; boil until dis-

solved; after taking it from the fire add a sliced orange with from 1½ to 3 ozs. of white sugar, according to the taste of the patient; bottle and keep cool.

To be used for a common drink in fevers of all grades, and at any time when a large amount of drink is craved by the invalid. Neither is there any bad taste to it for those in health.

UTERINE HEMORRHAGES.—Prof. Platt's Treatment Twenty Years Without a Failure.—Sugar of lead, 10 grs.; ergot, 10 grs.; opium, 3 grs.; ipecac, 1 gr.; all pulverized and well mixed. **Dose**—10 to 12 grs., given in a little honey or syrup.

In very bad cases after childbirth it might be repeated in thirty minutes, or the dose increased to fifteen or eighteen grains; but in cases of rather profuse wasting, repeat it once at the end of three hours. will usually be found all that is necessary; if not, repeat occasionally as the urgency of the case may seem to require.

Prof. Platt is connected with Antioch College, Ohio, and has been a very successful practitioner.

DYSPEPSIA.—In the good old days of corn bread and crust coffee there was but little trouble with Dyspepsia; but since the days of fashionable intemperance, both in eating and drinking, such as spirituous liquors, wines, beers, ale, tea, and coffee, hot bread or biscuit, high seasoned food, overloading the stomach at meals, and constant eating and drinking between meals, bolting the food, as called—that is, swallowing it without properly chewing—excessive venery, want of outdoor exercise, with great anxiety of mind as to how the means can be made to continue the same indulgences, etc., all have a tendency to debilitate the stomach and bring on or cause Dyspepsia.

And it would seem to the Author that the simple statement of its cause—the truth of which no one can reasonably doubt—would be sufficient to at least suggest its cure. But I am willing to state that, as a general thing, this over-indulgence would not be continued, nor would it have been allowed, had they known its awful consequences. I know that this was true in my own case, in all its points; this was, of course, before I had studied or knew but little of the power of the human system or the practice of medicine, and it was for the purpose of finding something to cure myself that I commenced its study; for it was by years of over-indulgence at table and between meals in the grocery business which I was carrying on that I brought on such a condition of the stomach that eating gave me the most intolerable suffering—a feeling almost impossible to describe; first a feeling of goneness or want of support at the stomach, heat, lassitude, and finally pain; until a thousand deaths would have been a great relief; drink was craved, and the more I drank the more intolerable the suffering—apple cider, vinegar and water made palatable with sugar, excepted. It might be asked at this point, what did I do? I would ask, what could I do? Eat I could not, drink I could not; then what else was to be done, only to do without either? What, starve? No.

Treatment.—Take—no, just stop taking. "Throw all medicine to the dogs"—yes, and food also. What, starve? No, but simply get hungry; whoever heard of a dyspeptic being hungry—at least those who eat three meals a day? They eat because the victuals taste good—mouth-hunger only.

The last year or two of my dyspeptic life I only ate because it was eating time, and supposed I must eat or die, when I only died forty deaths by eating.

All physicians whose books I have read, and all whose prescriptions I have obtained, say: "Eat little and often; drink little and often." I say eat a little, and at the right time—that is, when hungry at the stomach; drink a little, and at the right time—that is, after digestion; and it is of just as much importance to eat and drink the right thing as at the right time.

Persons have been so low in Dyspepsia that even one teaspoon of food on the stomach would not rest; in such cases let nothing be taken by mouth for several days; but inject gruel, rice water, rich broths, etc.; but these cases occur very seldom.

First.—Then, with ordinary cases, if there is much heat of the stomach, at bedtime wet a towel in cold water, wringing it out that it may not drip, and lay it over the stomach, having a piece of flannel over it to prevent wetting the clothes. This will soon allay the heat, but keep it on during the night, and at any subsequent time, as may be needed.

Second.—In the morning, if you have been in the habit of eating about two large potatoes, two pieces of steak, two slices of bread, or from four to six hot pancakes, or two to four hot biscuits, and drinking one to three cups of tea or coffee—hold, hold, you cry; no, let me go on. I have many times seen all these eaten, with butter, honey or molasses, too large in amount to be mentioned, with a taste of every other thing on the table, such as cucumbers, tomatoes, etc., etc., and all by dyspeptics; but,

You will stop this morning on half of one potato, two inches square of steak, and half of one slice of cold, wheat bread—or I prefer, if it will agree with you, that you use the "Yankee Brown Bread," only the same quantity; eat very slow, chew perfectly fine and swallow it without water, tea or coffee; neither must you drink any, not a drop, until one hour before meal time again, then as little as possible, so as not to choke to death.

Third.—The question now to be settled is, did you suffer from the abundance of your breakfast, or from the kind of food taken? If you did, take less next time, or change the kind, and so continue to lessen the quantity or change the kind until you ascertain the proper quantity and kind which enables you to overcome this exceeding suffering after meals; nay, more, which leaves you perfectly comfortable after meals.

Lastly.—You now have the whole secret of curing the worst case of Dyspepsia in the world. You will, however, bear in mind that years have been spent in indulgence; do not therefore expect to cure it in days; nay, it will take months, possibly a whole year of self-denial, watchfulness and care; and even then one overloading of the stomach at a Christmas pudding will set you back again for months. Make up your mind to eat only simple food, and that in small quantities, notwithstanding an over-anxious wife or other friend will say, "Now do try a little of this nice pie," pudding or other dish, no matter what it may be. "Oh, now do have a cup of this nice coffee," they will often ask; but no, no, must be the invariable answer, or you are again a "goner." For there is hardly any disease equally liable to relapse as dyspepsia; and indulgence in a variety of food or over-eating any one kind, or even watery vegetables or fruit, will be almost certain to make the patient pay dear for the whistle.

Then you must eat only such food as you know to agree with you, and in just as small quantities as will keep you in health. Drink no fluids until digestion is over, or about four hours after eating, until the stomach has become a little strong or toned up to bear it; then one cup of the "Dyspepsia Coffee," or one cup of the "Coffee Made Healthy" may be used. But more difficulty is experienced from over-drinking than over-eating. Most positively must Dyspeptics avoid cold water with their meals. If the saliva and gastric juice are diluted with an abundance of any fluid, they never have the same properties to aid or carry on digestion which they had before dilution; then the only hope of the Dyspeptic is to use no fluid with his food, nor until digestion has had her perfect work.

Caution.—I may be allowed to give a word of caution to Mothers, as well as to all others. One plate of food is enough for health—two, and even three, are often eaten. Most persons have heard of the lady who did not want a "cartload," but when she got to eating it all disappeared, and the retort, "Back up your cart and I will load it again," was just what I would have expected to hear if the load had been given to a Dyspeptic, which it no doubt was. Then learn the proper amount of food necessary for health, and when that is eaten, by yourself or child, stop. If the pudding is on the table and you choose to have a little of it, it is all right—have some pudding; if pie, have a piece of pie; or cake, have a piece of cake; but do not have all, and that after you have eaten twice as much meat victuals as health requires. If apples, melons, raisins or nuts are on the table, and you wish some of them, eat them before meal, and never after it; if surprise is manifested around you, say you eat to live, not live to eat. The reason for this is that persons will eat all they need, and often more, of common food, then eat nuts, raisins, melons, etc., until the stomach is not only filled beyond comfort, but actually distended to its utmost capacity of endurance; being led on by the taste, when if the reverse course was taken, the stomach becomes satisfied when the proper amount of the more common food has been eaten after the others.

Are you a Grocer, and constantly nibbling at raisins, candy, cheese, apples and every other edible? Stop, until just before meal, then eat what you like, go to your meal, and return, not touching again until meal time, and you are safe; continue the nibbling and you do it at the sacrifice of your future health. Have you children or other young persons under your care? See that they eat only a reasonable quantity at meals, and not anything between them; do this, and I am willing to be called a fool by the younger ones, which I am sure to be; but do it not, and the fool will suffer for his folly.

You may consider me a hard Doctor—be it so then; the drunkard calls him hard names who says give up your "cups," but as sure as he would die a drunkard, so sure will you die a Dyspeptic unless you give up your over-eating and over-drinking of water, tea, coffee, wine, beer, ale, etc. Now you know the consequences, suit yourself; but I have paid too dearly for my experience not to lift a warning voice or spare the guilty.

In recent cases, and in cases brought on by over-indulgence, at some extra rich meal, you will find the "Dyspeptic Tea," made from "Thompson's Composition," will be all sufficient, as spoken of under that head, which see.

2. The wild black cherries, put into Jamai rum, are highly recommended, made very strong with the cherries, and without sugar; but I should say put them into some of the domestic wines, or what would be still better, make a wine directly from them, according to directions under the head of "Fruit Wines."

3. Old "Father Pinkney," a gentleman over ninety years of age, assures me that he has cured many bad cases of Dyspepsia, where they would give up their over-indulgence, by taking:

Blue flag root, washed clean, and free from specks and rotten streaks, then pounding it and putting into a little warm water and straining out the milky juice, and adding sufficient pepper-sauce to make it a little hot. **Dose**—One tablespoon 3 times daily.

It benefits by its action on the liver, and it would be good in Liver Complaints, the pepper also stimulating the stomach. See "Soot-Coffee," No. 12, among the Ague medicines.

LARYNGITIS.—Inflammation of the Throat.—This complaint in a chronic form has become very prevalent, and is a disease which is aggravated by every change of weather, more especially in the fall and winter months. It is considered, and that justly, a very hard disease to cure, but with caution, time and a rational course of treatment it can be cured.

The difficulty with most persons is they think that it is an uncommon disease, and consequently they must obtain some uncommon preparation to cure it, instead of which some of the more simple remedies, as follows, will cure nearly every case if persevered in a sufficient length of time. First, then, take the

Alterative for Diseases of the Skin.—Compound tincture of Peruvian bark, 6 ozs.; fluid extract of sarsaparilla, 1 lb.; extract of conium, ½ oz.; iodide of potash (often called hydriodate), ½ oz.; iodine, ½ dr.; dissolve the extract of conium and the powders in a little of the fluid and mix all. **Dose**—Two teaspoons 3 times daily before meals, until all is taken. Shake the bottle well before using.

In the next place take the

2. **Gargle for Sore Throat.**—Very strong sage tea, ½ pt.; strained honey, common salt, and strong vinegar of each, 2

tablespoons; cayenne, the pulverized, one rounding teaspoon; steeping the cayenne with the sage, strain, mix and bottle for use, gargling from 4 to a dozen times daily, according to the severity of the case.

This is one of the best gargles in use. By persevering some three months I cured a case of two years' standing where the mouths of the Eustachian tubes constantly discharged matter at their openings through the tonsils into the patient's mouth, he having previously been quite deaf, the whole throat being also diseased. I used the preparation for "Deafness" also, as mentioned under that head.

Remembering always to breathe through nature's channel for the breath, the nose.

Besides the foregoing, you will wash the whole surface twice a week with plenty of the "Toilet Soap" in water, wiping dry, then with a coarse, dry towel rub the whole surface for ten minutes at least, and accomplish the coarse towel part of it every night and morning until the skin will remain through the day with its flushed surface and genial heat; this draws the blood from the throat and other internal organs, or, in other words, equalizes the circulation; know and act upon this fact, and no inflammation can long exist, no matter where it is located. Blood accumulates in the part inflamed, but let it flow evenly through the whole system, and, of course, there can be no inflammation.

You will also apply to the throat and breast the following:

3. **Sore Throat Liniment.**—Gum camphor, 2 ozs.; castile soap, shaved fine, 1 dr.; oil of turpentine, 1 tablespoon; oil of origanum, ¼ oz.; opium, ¼ oz.; alcohol, 1 pt. In a week or 10 days it will be fit for use, then bathe the parts freely 2 or 3 times daily.

This liniment would be found useful in almost any throat or other disease where an outward application might be needed. If the foregoing treatment should fail, there is no alternative but to bring in emetics with the other treatment and continue them for a long time.

I mention the emetic plan last, from the fact that so many people utterly object to the emetic treatment. But when everything else fails, that steps in and saves the patient, which goes to show how unjust the prejudice. By the phrase, a long time, I mean several weeks, twice daily at first, then once a day, and finally thrice to twice a week, etc. A part of this course you will see by the following is corroborated by the celebrated Lung and Throat Doctor, S. S. Fitch, of New York, who says "it is a skin disease, and that purifying medicines are necessary to cleanse the blood—taking long, full breaths," etc. This is certainly good sense. His treatment of throat diseases is summed up in the following:

Note.—"Wear but little clothing around the neck—chew often a little nut-gall and swallow the juice—wear a wet cloth about the throat at night, having a dry towel over it—bathe freely all over as in consumption, and especially bathe the throat with cold water every morning, also wash out the inside of the throat with cold water—avoid crowded rooms—gargle with a very weak solution of nitrate of silver—chewing gold thread and swallowing the juice and saliva from it—borax and honey occasionally, and gum arabic water, if much irritation—use the voice as little as possible until well, also often using a liniment externally."

I had hoped for very much benefit from using croton oil externally, but time has shown that the advantage derived from it is not sufficient to remunerate for the excessive irritation caused by its continued application.

4. Smoking dried mullein leaves in a pipe not having been used for tobacco, is said to have cured many cases of Laryngitis. And I find in my last Eclectic Medical Journal so strong a corroboration, taken from the Medical and Surgical Reporter, of this fact that I cannot refrain from giving the quotation. It says: "In that form of disease in which there is dryness of the trachea, with a constant desire to clear the throat, attended with little expectoration, and considerable pain in the part affected, the mullein smoked through a pipe acts like a charm and affords instant relief. It seems to act as an anodyne in allaying irritation, while it promotes expectoration and removes that gelatinous mucus which gathers in the larynx, and, at the same time, by some unknown power, completely changes the nature of the disease, and, if persevered in, will produce a radical cure."

We read in a certain place of a gentleman who was walking around and through a great city, and he came across an inscription, "To the unknown God"—and directly we find him explaining that unknown Being to the astonished inhabitants. And I always feel like this old-fashioned gentleman, to cry out upon every convenient occasion, my belief that it was that God's great wisdom, seeing what was required, and His exceeding goodness, providing according to our necessities, this wonderful, and to some that unknown, power in the thousands of planets around us. What matters it to us how it is done? If the cure is performed it is sufficient.

Since the publication of the foregoing, in the ninth edition, I have been smoking the dried mullein, and recommending it to others. It has given general satisfaction for coughs and as a substitute for tobacco in smoking, exhilarating the nerves and allaying the hacking coughs from recent colds, by breathing the smoke into the lungs. In one instance, after retiring, I could not rest from an irritation in the upper portion of the lungs and throat, frequently hacking without relief only for a moment. I arose, filled my pipe with mullein, returning to bed, I smoked the pipeful, drawing it into the lungs, and did not cough again during the night.

An old gentleman, an inveterate smoker, from my suggestion, began to mix the mullein with his tobacco, one-fourth at first, for a while; then half, and finally three-fourths; at this point he rested. It satisfied in place of the full amount of tobacco, and cured a cough which had been left upon him after inflammation of the lungs. The flavor can hardly be distinguished from the flavor of tobacco smoke, in rooms.

It can be gathered any time during the season, the center stem removed, carefully dried, and rubbed fine, when it is ready for use. It gives a pipe the phthysic, as fast as it cures one on the patient; but the clay pipe, which is to be used, can be readily cleaned by burning out.

Here is the "Substitute for Tobacco" for which the French have offered 50,000 francs.

It can be made into cigars by using a tobacco leaf wrapper.

Catarrh is often more or less connected with that disease. In such cases, in connection with the above treatment, take several times daily of the following:

Catarrh Snuff.—Scotch snuff, 1 oz.; chloride of lime, dried and pulverized, 1 rounding teaspoon; mix and bottle, corking tightly.

The snuff has a tendency to aid the secretion from the parts; and the chloride corrects unpleasant fetor.

CANCERS.—To Cure—Method of Dr. Landolfi (Surgeon-General of the Neapolitan Army), and Several Successful American Methods.—The principle upon which the treatment is based consists in transforming a tumor of a malignant character, by conferring upon it a character of benignty, which admits a cure. This transformation is effected by cauterization with an agent looked upon as a specific, viz: chloride of bromine, combined or not with other substances, which have already been tried, but have hitherto been employed separately. The internal treatment is merely auxiliary. (Cancers may be known from other tumors by their shooting, or lancinating pains; and if an open sore, from their great fetor.—Author.) The formulas for the caustics are, with the exception of a few cases, the following:

Equal parts of the chlorides of zinc, gold and antimony, mixed with a sufficient quantity of flour to form a viscid paste.

At Vienna he used a mixture of the same substances in different proportions; chloride of bromine, 3 parts; chloride of zinc, 2 parts; chloride of gold and antimony, each 1 part; made into a thick paste with powdered licorice root. This preparation should be made in an open place, on account of the gases which are disengaged.

The essential element is the chloride of bromine, which has often been employed alone; thus, chloride of bromine from 2½ to 4 drs., and put licorice root as much as sufficient.

The chloride of zinc is indispensable in ulcerated cancers, in which it acts as a hemastatic (stopping blood). The chloride of gold is only useful in cases of encephaloid (brain-like) cancers, in which it exercises a special, if not a specific action. Cancers of the skin (epitheliomas), lupus and small cystosarcomas (watery or bloody tumors) are treated with bromine mixed with basilicon ointment in the proportion of one part of bromine to eight of the ointment; the application should not extend to the healthy parts, its action being often propagated through a space of one or two lines. The paste is only allowed to remain on about twenty-four hours; on removing the dressing a line of demarkation is almost always found separating the healthy from the morbid parts. The tumor is itself in part whitish and part reddish, or marbled with yellow and blue. The caustic is replaced with the poultice, or with compresses smeared with basilicon ointment only, which are to be removed every three hours until the scar is detached; the pain progressively diminishing in proportion as the mortification advances, the line of demarkation daily becomes more evident; about the fourth or fifth day the cauterized portion begins to rise, and from the eighth to the fifteenth day it becomes detached or can be removed with forceps and without pain, exposing a suppurating surface, secreting pus of good quality and covered with healthy granulations. If any points remain of less satisfactory appearance, or present traces of morbid growth, a little of the paste is to be again applied, then dress the sore as you would a simple ulcer; if the suppuration proceeds too slowly, dress it with lint dipped in the following solution:

Chloride of bromine, 20 or 30 drops; Goulard's Extract, from 1 to 2 drs.; distilled water, 16 ozs.

In the majority of cases healing takes place rapidly, cicatrization progresses from the circumference to the center, no complications supervene, and the cicatrix (scar) resembles that left by a cutting instrument. His internal remedy to prevent a relapse is:

Chloride of bromine, 2 drops; powder of the seeds of water fennel, 23 grs.; extract of hemlock (Conium aculatum), 12 grs.; mix and divide into 20 pills; one to be taken daily for 2 months, and after that 2 pills daily for a month or two longer, 1 night and morning after meals.

In any case of Cancer, either the foregoing internal remedy, or some of the other Alteratives, should be taken two or three weeks before the treatment is commenced, and should also be continued for several weeks after its cure.

2. **Dr. H. G. Judkins' Method.**—This gentleman, of Malaga, Monroe Co., Ohio, takes:

Chloride of zinc the size of a hazel nut, and puts enough water with it to make a thin paste, then mixes with it equal parts of flour and finely pulverized charcoal, sufficient to form a tolerable stiff paste.

He spreads this on a soft piece of sheep skin, sufficiently large to cover the tumor, and applies every two days until it is detached, then dresses it with "Judkins' Ointment," which see. Again:

3. **L. S. Hodgkins' Method.**—This gentleman is a merchant, of Reading, Mich. The method is not original with him, but he cured his wife of cancer of the breast, after having been pronounced incurable. Some would use it because it contains calomel—others would not use it for the same reason. I give it an insertion from the fact that I am well satisfied that it has cured the disease and from its singularity of composition.

Take a white oak root and bore out the heart and burn the chips to get the ashes, ¼ oz.; lunar caustic, ¼ oz.; calomel, ¼ oz.; salts of nitre (salt petre), ¼ oz.; the body of a thousandlegged worm, dried and pulverized, all to be made fine and mixed with ¼ lb. of lard.

Spread this rather thin upon soft leather and apply to the Cancer, changing twice a day; will kill the tumor in three or four days, which you will know by the general appearance; then apply a poultice of soaked figs until it comes out, fibers and all; heal with a plaster made by boiling red beech leaves in water, straining and boiling thick, then mix with beeswax and mutton tallow to form a salve of proper consistency. To cleanse the system while the above is being used and for some time after:

Take mandrake root, pulverized, 1 oz.; epsom salts, 1 oz.; put into pure gin, 1 pt., and take of this 3 times daily, from 1 tea to a tablespoon, as you can bear. He knew of several other cures from the same plan.

4. The juice of pokeberries, set in the sun, upon a pewter dish, and dried to a consistence of a salve, and applied as a plaster, has cured cancer.

5. Poultices of scraped carrots, and of yellow dock root, have both cured, and the scraped carrot poultices especially not only cleanse the sore, but remove the very offensive smell or fetor which is characteristic of cancers.

6. A gentleman in Ohio cures them by making a tea of the yellow dock root, and drinking of it freely, washing the sore with the same several times daily for several days, then poulticing with the root, mashed and applied twice daily, even on the tongue.

7. Rev. C. C. Cuyler, of Poughkeepsie, N. Y., says he has known several cases cured as follows:

Take the narrow-leaved dock root and boil it in soft water until very strong, wash the ulcer with this strong decoction 3 times in the 24 hours, fill the cavity also with the same 2 minutes each time, then bruise the root and lay it on gauze, and lay the gauze next to the ulcer, and wet linen cloths in the decoction and lay over the poultice; and each time let the patient drink a wine-glass of the strong tea of the same root, with 1-3 of a glass of port wine sweetened with honey.

8. Dr. Buchan's work on Medicine gives the case of a person who had cancer of the tongue cured in fourteen days, as follows:

Dilute nitric acid, 1 oz.; honey, 2 ozs.; pure water, 2 pts.; mix. **Dose**—Three tablespoons frequently; to be sucked past the teeth through a quill or tube.

Opium was given at night, simply to keep down pain.

9. **Great English Remedy**—By which a brother of Lowell Mason was cured, is as follows:

Take chloride of zinc, blood-root pulverized, and flour, equal quantities of each, worked into a paste and applied until the mass comes out, then poultice and treat as a simple sore.

The Rural New Yorker, in reporting this case, says in applying it "First spread a common sticking-plaster much larger than the cancer, cutting a circular piece from the center of it a little larger than the cancer, apply it, which exposes a narrow rim of healthy skin; then apply the cancer plaster and keep it on twenty-four hours. On removing it the cancer will be found to be burned into, and appears the color of an old shoe sole, and the rim outside will appear white and parboiled, as if burned by steam.

"Dress with slippery-elm poultice until suppuration takes place, then heal with any common salve."

10. **Armenian Methods.**—In Armenia a salve made by boiling olive oil to a proper consistence for the use is reported by an eastern traveler to have cured very bad cases.

11. Figs boiled in new milk until tender, then split and applied hot—changing twice daily, washing the parts every change with some of the milk—drinking 1 gill of the milk also as often.

And continuing from three to four months is also reported to have cured a man ninety-nine years old by using only six pounds, whilst ten pounds cured a case of ten years' standing. The first application giving pain, but afterward relief, every application.

12. **Red Oak Bark.**—A salve from the ashes has long been credited for curing cancer, and as I have recently seen the method given for preparing and using it, by Isaac Dillon, of Oregon, published in a paper near him, I cannot keep the benefit of it from the public. The directions were sent to him by his father, John Dillon, Sr., of Zanesville, Ohio, and from my knowledge of the Dillon family I have the utmost confidence in the prescription. It is as follows:

Take red oak bark ashes, 1 peck; put onto them boiling water, 6 qts.; let it stand 12 hours; then draw off the lye and boil to a thick salve; spread this, pretty thick, upon a thick cloth a little larger than the cancer, and let it remain on 3 hours; if it is too severe, half of that time; the same day or the next apply again 3 hours, which will generally effect a cure; after the last plaster wash the sore with warm milk; then apply a healing salve made of mutton tallow, bark of elder, with a little rosin and beeswax (some root of white lily may be added), stewed over a slow fire; when the sore begins to maturate, wash it 3 or 4 times daily, renewing the salve each time; avoid strong diet and strong drink, but drink a tea of sassafras root and spice-wood tops for a week before and after the plaster.

13. **Prof. R. S. Newton,** of Cincinnati, uses the chloride of zinc, a saturated solution (as strong as can be made), or makes the chloride into a paste, with thick gum solution.

In cases of large tumors he often removes the bulk of them with a knife, then applies the solution, or paste, as he thinks best, to destroy any remaining roots which have been severed by the knife.

14. **Prof. Calkins,** of Philadelphia, prefers a paste made from yellow-dock, red-clover and poke, using the leaves only of either article in equal quantities.

Boiling, straining and simmering to a paste, applying from time to time to cancerous growths or tumors, until the entire mass is destroyed, then poultice and heal as usual.

But Dr. Beach, of New York, who is a man of much experience in cancers, says beware of the knife, or any plaster which destroys the cancer or tumor; but first use discutients (medicines which have a tendency to drive away swellings) until already ulcerated, then mild poultices to keep up a discharge from the ulcer, with alteratives, long continued, keeping the bowels regular, etc., etc. The Vienna physicians, as well as Dr. Beach, allow the inhalation of a few drops of chloroform where the pain is excruciating. And I would say apply a little externally also around the sore.

Cancers should not be disturbed as long as they do not grow nor ulcerate, but as soon as either begins, then is the time to begin with them.

COSTIVENESS.—To Cure.—Costive habits are often brought on by neglecting to go to stool at the usual time, for most persons have a regular daily passage, and the most usual time is at rising in the morning or immediately after breakfast; but hurry, or negligence, for the want of an understanding of the evils arising from putting it off, these calls of nature are suppressed; but let it be understood, nature, like a good workman or student, has a time for each duty; then not only let her work at her own time, but if tardy go at this time and not only aid but solicit her call, or in other words:

"When nature calls, at either door, do not attempt to bluff her;
But haste away, night or day, or health is sure to suffer."

The above with attention to diet, using milk, roasted apples, and, if not dyspeptic, uncooked apples, pears, peaches, etc., at meal time, "Yankee Brown Bread," or bread made of unbolted wheat, if preferred, and avoiding a meat diet, will in most cases soon remedy the difficulty. However:

2. **In Very Obstinate Cases**—Take extract of henbane, ½ dr.; extract of colocynth, 1-3 dr.; extra of nux vomica, 3 grs.; carefully work into pill mass, and form into 15 pills. **Dose**—One pill night and morning.

Continue their use until the difficulty is overcome, at the same time following the previous directions faithfully. With many persons the following will be found all sufficient:

3. **Brandy.**—½ pt.; and put into it rhubarb-root, bruised, 1 dr.; hiera-picra, 1 oz.; and fennel seed, ½ oz.

After it has stood for several days, take a tablespoon of it three times daily before eating, until it operates, then half the quantity or a little less, just sufficient to establish a daily action of the bowels, until all is taken. Or, the second pill under the head of Eclectic Liver Pill may be taken as an alterative to bring about the action of the liver, which is, of course, more or less inactive in most cases of long continued costiveness.

4. **Corn Meal.**—1 tablespoon stirred up in sufficient cold water to drink well, and drank in the morning, immediately after rising, has with perseverance cured many bad cases.

5. **A Fresh Egg.**—Beat in a gill of water and drank on rising in the morning and at each meal for a week to ten days, has

cured obstinate cases. It might be increased two or three at a time, as the stomach will bear.

CHRONIC GOUT.—To Cure.—"Take hot vinegar and put into it all the table salt which it will dissolve, and bathe the parts affected with a soft piece of flannel. Rub it with the hand and dry the foot, etc., by the fire. Repeat this operation four times in the 24 hours, 15 minutes each time, for four days; then twice a day for the same period; then once, and follow this rule whenever the symptoms show themselves at any future time."

The philosophy of the above formula is as follows: Chronic gout proceeds from the obstruction of the free circulation of the blood (in the parts affected) by the deposit of a chalky substance, which is generally understood to be a carbonate and phosphate of lime. Vinegar and salt dissolve these; and the old chronic compound is broken up. The carbonate of lime, etc., become acetate and muriate, and these being soluble, are taken up by the circulating system and discharged by secretion. This fact will be seen by the gouty joints becoming less and less in bulk until they assume their natural size. During this process the stomach and bowels should be occasionally regulated by a gentle purgative. Abstinence from spirituous libations; exercise in the open air, and especially in the morning; freely bathing the whole surface; eating only the plainest food, and occupying the time by study or useful employment are very desirable assistants.

2. **Gout Tincture.**—Veratrum viride (swamp hellebore), ½ oz.; opium, ¼ oz.; wine, ½ pt.; let them stand for several days. **Dose**—15 to 30 drops, according to the robustness of the patient, at intervals of two to four hours.

M. Husson, a French officer, introduced this remedy in gout some sixty years ago, and it became so celebrated that it sold as high as from one to two crowns a dose. It is considered valuable also in acute rheumatism. In gout it removes the paroxysms, allays pain and procures rest and sleep, reduces the pulse and abates fever.

3. Coffee has recently been recommended, not only for gout, but gravel also. Dr. Mosley observes in his "Treatise on Coffee" that the great use of the article in France is supposed to have abated the prevalence of the gravel. In the French colonies, where coffee is more used than in the English, as well as in Turkey, where it is the principal beverage, not only the gravel but the gout is scarcely known. Dr. Fraur relates, as an extraordinary instance of the effect of coffee on gout, the case of Dr. Deveran, who was attacked with gout at the age of twenty-five, and had it severely till he was upward of fifty, with chalk stones in the joints of his hands and feet; but for four years preceding the time when the account of his case had been given to Dr. Fraur to lay before the public, he had, by advice, used coffee, and had no return of the gout afterward.

PARALYSIS.—If Recent—To Cure.—When Paralysis (numb palsy) has existed for a great length of time, but little benefit can be expected from any treatment; but if recent, very much good, if not a perfect cure, will be the result of faithfully governing yourself by the following directions with this:

Paralytic Liniment.—Sulphuric ether, 6 ozs.; alcohol, 2 ozs.; laudanum, 1 oz.; oil of lavender, 1 oz.; mix and cork tightly. In a recent case of paralysis let the whole extent of the numb surface be thoroughly bathed and rubbed with this preparation for several minutes, using the hand, at least 3 times daily, at the same time internally, 20 drops of the same, in a little sweetened water, to prevent translation upon some internal organ.

It may be used in old cases, and in many of them will undoubtedly do much good; but I do not like to promise what there is not reasonable chance to perform. It is well in very recent cases to keep the parts covered with flannels, with a large amount of friction by the hand; also electricity scientifically applied, that is, by a Physician or some one who has studied the nature and operations of the electrical machine.

This liniment should be applied so freely that about an ounce a day will be consumed on an arm or leg, and if a whole side is palsied, proportionately more. In cases of pains in the stomach or side a teaspoon will be taken with unusual success; or for pain in the head apply to the surface, always bearing in mind that some should be taken internally whenever an external application is made. In sprains and bruises where the surface is not broken it will be found very efficacious. It may be successfully rubbed over the seat of any internal disease accompanied with pain.

ENLARGED TONSILS.—To Cure.—Where the tonsils are enlarged from colds or epidemic sore throat.

Take No. 6, 1 oz.; molasses, 2 ozs.; and hot water, 4 ozs.; mix and sip a little into the throat often, swallowing a little also; it keeps up a discharge of saliva from those parts and thus relieves their swollen condition; and stimulates to renewed healthy action.

It has proved very efficacious in the above epidemic cases, which leave the tonsils much indurated (hardened), as well as swollen, with a tendency to chronic inflammation of the whole larynx, or throat, often with little ulcers. In that case:

Put 10 grs. of nitrate of silver to 1 oz. of water with 3 or 4 drops of creosote, and swab the throat with it, and lay a flannel wet with turpentine upon the outside.

The worst cases will shortly yield to this mild treatment. Should there, however, be a disposition to fever, you might also put the feet into hot water fifteen or twenty minutes, with occasional sponging of the whole surface.

SICK HEADACHE.—To Cure.—Sick headache proper arises from acidity or overloading the stomach; when it is not from over-eating all that is necessary is to soak the feet in hot water about twenty minutes, drinking at the same time some of the herb-teas, such as pennyroyal, catnip, or mint, etc., then get into bed, cover up warm and keep up a sweating process for about an hour, by which time relief will have been obtained; but when food has been taken which remains in the stomach, it is much the best way to take an emetic, and the following is the:

2. **Electric Emetic.**— Which is composed of lobelia, and ipecacuanha, equal parts, and blood root half as much as of either of the others, each pulverized separately and mix thoroughly. **Dose**—Half a common teaspoon every 15 to 20 minutes in some of the warm teas, for instance, camomile-flowers, pennyroyal, or boneset—drinking freely between doses of the same tea in which you take it; continue until you get a free and full evacuation of the contents of the stomach.

After the operation, and when the stomach becomes a little settled, some nourishment will be desired, when any of the mild broths, or gruel, should be taken, in small quantities, without fear of increasing the difficulty.

"There is probably no emetic surpassing this, either in efficacy of action, or efficiency in breaking up morbid, unhealthy conditions of the system generally; and exciting healthy action. It is excellent in croup, chronic affections of the liver or stomach, etc., and in fact when and wherever an emetic is needed." —Beach.

But after a full trial of both, upon my own person and others, I prefer lobelia seed alone, pulverized when used. The manner of administering them has been the cause of bringing the lobelia metic into disrepute. I take "Thompson's Composition" tea, made as there directed and drink two saucers of it, fifteen minutes apart, and with the third I stir in one rounding teaspoon of lobelia seed, pulverized, and drink it; then every fifteen minutes I take another saucer of the tea until free vomiting takes place, not taking any more of the lobelia; by this course I think it more efficient and thorough than the mixed emetic, and entirely free from danger of the "alarming symptoms," as they are called, brought on by continuing to give the lobelia every few minutes instead of waiting its action, and all for want of knowledge as to what that action should be; but if you give it its own time, continuing the stimulating tea, it will have its specific action, which is to vomit, no matter at which end it is introduced. When it begins to vomit it will generally continue its action until it empties the stomach, then I begin to substitute the composition with:

3. **Bread Tea, Used in Taking Emetics.**—Made by taking a piece of dry bread and crumbling it into a bowl with a little salt, pepper and butter to suit the taste, then pouring boiling water upon it; this soon allays the retching and strengthens the stomach to renewed healthy action.

Periodical Headache.—There are those who have sick headache coming on at periods of from a few weeks to two or three months, lasting two or three days, accompanied with nausea and occasionally with vomiting. In these cases after using the emetic to relieve the present attack take the Cathartic Syrup next following:

4. **Cathartic Syrup.**—Best senna leaf 1 oz.; jalap ½ oz.; butternut, the inner bark of the root, dried and bruised, 2 oz.;

peppermint leaf ½ oz.; fennel seed ½ oz.; alcohol 1-2 pt.; water 1½ pts.; sugar 2 lbs.; put all into the spirit and water, except the sugar, and let it stand 2 weeks, then strain, pressing out from the dregs, adding the sugar and simmering a few minutes only to form the syrup. If it should cause griping in any case increase the fennel seed and peppermint leaf. **Dose**—One tablespoon once a day, or less often if the bowels become too loose, up to the next period when the headache might have been expected, and it will not be forthcoming.

This is a mild purgative and especially pleasant. Most persons after a trial of it will adopt it for their general cathartic, and especially for children. Increase or lessen the dose according to the effect desired.

Females in a weak and debilitated condition often have a headache which is purely sympathetic. This they will distinguish by their general weakness, irregularities and lightheadedness, often amounting to real pain. In such cases take the following:

5. **Headache Drops.**—Castor, gentian and valerian roots, bruised, ¼ oz.; laudanum 1 oz.; sulphuric ether 1½ oz.; alcohol ½ pt.; water ½ pt.; put all into a bottle and let stand about 10 days. **Dose**—A teaspoon as often as required, or 2 or 3 times daily.

6. **Tincture of Blood-Root.**—Made by putting 1 oz. of the dried, bruised root to 1 pt. of gin and taking 1 teaspoon before eating every morning and only eating a reasonable amount of easily digested food.

Has worked wonders in cases where headaches had been of very long standing. And it might not be amiss to say that the majority of headaches are found among those who are disposed to dyspepsia by long continued over-eating, then reducing the gastric juice by over-drinking, even of water, tea or coffee.

A Niles paper gives one which is easily tried. It is as follows:

7. "**Charcoal, a Cure for Sick Headache.**—It is stated that two teaspoons of finely powdered charcoal drank in half a tumbler of water will in less than 15 minutes give relief to the sick headache when caused, as in most cases it is, by superabundance of acid on the stomach. We have tried this remedy time and again and its efficacy in every instance has been signally satisfactory."

When headache has been brought on by eating too freely of boiled beef, cabbage, etc., or any other indigestible dinner, one cup of "good tea," at tea time, eating only a slice of dry bread, will often allay the nervousness, quiet the head, and aid in getting to sleep. The "Good Samaritan" applied to the head is also good.

DELIRIUM TREMENS.—To Obtain Sleep.—Give an emetic of ipecacuanha, then give 15 to 18 grs. of the same every 2 hours, using the shower bath and giving all the beef tea the patient desires.

The jail physician of Chicago reports thirty-six favorable cases treated as above. In Boston at the House of Correction the danger arising from the sudden loss of their accustomed stimulus, according to Puritanic economy, is overcome by administering freely a strong decoction of wormwood.

2. **Stimulating Anodyne.**—Sulphate of quinine 12 grs.; sulphate of morphine 1 gr.; mix and divide into 6 powders. **Dose**—One powder every hour.

Professor King, of Cincinnati, Ohio, says that from two to four powders of the above anodyne will nearly every time produce sleep in this whisky delirium.

TYPHUS FEVER.—To Prevent infection.—Take nitre (salt petre) pulverized, ¾ oz.; oil of vitriol ¾ oz.; put the nitre into a teacup and set it on a red hot shovel, adding the vitriol one-sixth at a time, stirring it with a pipe stem, avoiding the fumes as they rise from the cup; no danger, however, in breathing the air of the room.

The above amount is sufficient for a room twelve by sixteen feet, and less or more according to the size of other rooms. Dr. J. C. Smith, of London, is said to have received from Parliament £5,000 for making this recipe public.

2. To purify the air from noxious effluvia in sick rooms not of a contagious character simply slice three or four onions, place them on a plate upon the floor, changing them three or four times in the twenty-four hours.

3. **Disinfectant for Rooms, Meat and Fish.**—Common salt ½ a teacup; sulphuric acid 2 or 3 oz.; put about ½ oz. of the acid upon the salt at a time every fifteen minutes, stirring until all put on.

This will purify a large room, and for meat or fish, hang them up in a box having a cover to it and thus confine the gas, and tainted articles of food will soon be purified by the same operation. And notwithstanding so much was paid for the "Smith Disinfectant," the above will be found equally good.

4. **Coffee**, dried and pulverized, then a little of it sprinkled upon a hot shovel will in a very few minutes clear a room of all impure effluvia, and especially of an animal character.

5. **Chloride of Lime.**—Half a saucer of it moistened with an equal mixture of good vinegar and water, a few drops at a time only, will purify a sick room in a few minutes.

SWEATING PREPARATIONS.—Sweating Drops.—Ipecacuanha, saffron, Virginia snake root and camphor gum, each 2 ozs.; opium ½ oz.; alcohol 2 qts. Let stand 2 weeks, shaking occasionally. **Dose**—A teaspoon in a cup of hot pennyroyal, spearmint or catnip tea every half hour until perspiration is induced, then once an hour for a few hours.

It is excellent in colds, fevers, pleurisy, inflammation of the lungs, etc. It is good to soak the feet in hot water at the same time.

2. **Sweating with Burning Alcohol.**—Pour alcohol into a saucer to about half fill it; place this under a chair; strip the person to be sweated of all clothing and place him in the chair, putting a comforter over him also; now light a match and throw

into the saucer of alcohol, which sets it on fire, and by the time the alcohol is burned out he will be in a profuse perspiration; if not, put in half as much more of alcohol and fire it again, which will accomplish the object; then rise up and draw the comforter around you and get into bed, following up with hot teas and sweating drops as in the first above.

This last plan of sweating is also good in recent colds, pleurisy, inflammation of the lungs and all other inflammatory diseases, either in recent attacks or of long standing complaints. See the closing remarks after the treatment of "Pleurisy," also "Ginger Wine."

IMPERIAL DROPS.—For Gravel and Kidney Complaints.—Take saltpetre 1 oz.; putting it into an iron mortar, dropping in a live coal with it, which sets it on fire; stir it around until it all melts down into the solid form, blow out the coals and pulverize it; then take an equal amount of bi-carbonate of potassia, or saleratus, and dissolve both in soft water, 2 ozs. Dose—From 20 to 30 drops morning and evening in a swallow of tea made from flaxseed or a solution of gum arabic.

In connection with the drops let the patient take from a tablespoon to two or three tablespoons of onion juice—that is, all the stomach will bear—eating all the raw onions he can, and continue it until free of the complaint. I have seen gravel the size of a common quill, crooked and one and one-fourth inches in length, which a lady passed from the bladder and smaller bits almost innumerable by the simple use of onion juice alone.

The onion juice (red onions are said to be the best) has and may be injected through a catheter into the bladder. Have no fears to do this, for I know a physician of 40 years' practice who has done it five times with success. A physician, however, would have to be called to introduce the catheter.

2. In what is termed "Fits of the gravel," that is, where small gravel has become packed in the ureter (tube which leads from the kidney to the bladder), causing excruciating pain in that region, a pill of opium must be given varying in size from one to three grains, according to the pain, strength and age of the patient.

3. A strong decoction made by using a large handful of smart weed, adding a gill of gin and a gill each of horse mint and onion juices and taking all in 12 hours has been known to discharge gravel in large quantities.—Philadelphia Eclectic Journal.

The surest sign of gravel is the dark appearance of the urine, as if mixed with coffee grounds, and a dull pain in the region of the kidney—if only inflammation the darkness will not appear. See the closing remarks upon Gout.

CAMPHOR ICE—For Chapped Hands or Lips.—Spermaceti tallow 1½ ozs.; oil of sweet almonds 4 teaspoons; gum camphor ¾ oz.; made fine. Set on the stove until dissolved, constantly stirring. Do not use only just sufficient heat to melt them.

Whilst warm pour into moulds if desired to sell, then paper and put up in tin foil. If for your own use put up in a tight box. Apply to the chaps or cracks two or three times daily, especially at bedtime.

BURNS.—Salve for Burns, Frost Bites, Cracked Nipples, etc.—Equal parts of turpentine, sweet oil and beeswax; melt the oil and wax together and when a little cool add the turpentine and stir until cold, which keeps them evenly mixed.

Apply by spreading upon thin cloth—linen is the best. I used this salve upon one of my own children only a year and a half old which had pulled a cup of hot coffee upon itself, beginning on the eyelid and extending down the face, neck and breast, also over the shoulder and in two places across the arm, the skin coming off with the clothes. In fifteen minutes from the application of the salve the child was asleep and it never cried again from the burn and not a particle of scar left.

It is good for chaps on hands or lips, or for any other sore. If put on burns before blistering has taken place they will not blister. And if applied to sore or cracked nipples every time after the child nurses it soon cures them also. For nipples simply rubbing it on is sufficient. I find it valuable also for pimples and common healing purposes, and I almost regret to add any other preparations for the same purposes for fear that some will neglect this, but as there may be cases where some of the following can be made when the above cannot I give a few others known to be valuable. The first one is from Dr. Downer, of Dixboro, within six miles of our city. He used it in a case where a boy fell backwards into a tub of hot water, scalding the whole buttock, thighs and privates, making a bad scald in a bad place, but he succeeded in bringing him successfully through, and from its containing opium it might be preferable to the first in deep and very extensive burns, but in that case the opium might be added to the first. It is as follows:

2. **Dr. Downer's Salve for Burns.**—Beeswax, 4 ozs.; opium, ¼ oz.; sugar of lead, 1 oz.; melt the beeswax and rub the lead up in the wax, then the opium, and finally add about a gill of sweet oil, or sufficient to make a salve of proper consistency.

Spread lightly on cloth. No pain, he says, will be felt under its use. He highly recommends it for the pain and inflammation of Piles also.

3. **Poultice for Burns and Frozen Flesh.**—A. Bronson, of Meadville, Pa., says from fifteen years' experience that Indian meal poultices covered with young hyson tea, moistened with hot water, and laid over burns or frozen parts as hot as can be borne will relieve the pain in five minutes, and that blisters if they have not will not arise, and that one poultice is usually sufficient.

4. **Salve for Burns.**—Beeswax, Burgundy pitch, white pine pitch and rosin, of each ¼ lb.; mutton tallow, ½ lb.; goose oil, 1 gill; tar, ½ gill, mixed and melted together and used as other salves.

This was used successfully on a very bad case, burned all over the face, neck, breast, bowels, etc., soothing and quieting the pain, giving rest and sleep directly.

5. **Garden and Kitchen Salve for Burns and Frost Bites.**—Liveforever and sweet clover leaves, camomile and sweet elder, the inner bark, a handful of each; simmer them in fresh butter and mutton tallow, of each ¼ lb.; when crisped strain out and add 2 or 3 ozs. of beeswax to form a salve. Spread very thin on thin cloth.

Mrs. Miller, of Macon, Mich., cured a bad case with this, burned by the clothes taking fire, nearly destroying the whole surface. She speaks of it in equal praise for cuts and frost bites. See the Green Ointment also for Chilblains.

6. The white of an egg beat up, then beat for a long time with a tablespoon of lard until a little water separates from them I have found good for burns.

7. The white oxide of bismuth rubbed up in a little lard is also a good application for burns.

8. Glycerine and tannin, equal weights, rubbed together into an ointment is very highly recommended for sore or cracked nipples. See Dr. Raymond's statement in connection with the treatment of Piles.

ITCHING FEET FROM FROST BITES.—To Cure.—Take hydrochloric acid, 1 oz.; rain water, 7 ozs.; wash the feet with it two or three times daily, or wet the socks with the preparation until relieved.

A gentleman whose feet had been frozen in the Alps eight years before and another man's had been frozen two years before in the Sierra Nevada Mountains, were effectually cured by its use.

CHILBLAINS.—To Cure.—Published by Order of the Government of Wirtemburg.—Mutton tallow and lard, of each ¾ lb.; melt in an iron vessel and add, hydrated oxide of iron, 2 ozs., stirring continually with an iron spoon until the mass is of an uniform black color, then let it cool and add Venice turpentine, 2 ozs., and Armenian bole, 1 oz.; oil of burgamot, 1 dr.; rub up the bole with a little olive oil before putting it in. Apply several times daily by putting it upon lint or linen. It heals the worst cases in a few days.

Chilblains arise from a severe cold to the part, causing inflammation, often ulcerating, making deep and very troublesome sores.

FELONS.—If Recent, to Cure in Six Hours.—Venice turpentine, 1 oz., and put into it half a teaspoon of water and stir with a rough stick until the mass looks like candied honey, then spread a good coat on a cloth and wrap around the finger. If the case is only recent it will remove the pain in six hours.

2. A poke root poultice on a felon cures by absorption, unless matter is already formed. If it is it soon brings it to a head and thus saves much pain and suffering.

3. Blue flag and hellebore roots, equal parts, boiled in milk and water, then soak the felon in it for twenty minutes as hot

as can be borne, and bind the roots on the parts for one hour has cured many felons when commenced in time.

4. A poultice of clay from an old log house made and kept wet with spirits of camphor is also good.

5. **Felon Ointment.**—Take sweet oil, ½ pt., and stew a five-cent plug of tobacco in it until the tobacco is crisped, then squeeze it out and add red lead, 1 oz., and boil until black. When a little cool add pulverized camphor gum, 1 oz.

Mrs. Jordan, of Clyde, Ohio, paid $10 for this recipe and has cured many bad felons, as well as fellows, with it. Bad fellows because they did not pay her. Certainly this is a rational use of tobacco.

6. **Felon Salve.**—A salve made by burning one tablespoon of copperas, then pulverizing it and mixing with the yolk of an egg is said to relieve the pain and cure the felon in twenty-four hours. Then heal with cream, two parts, and soft soap, one part. Apply the healing salve daily after soaking the part in warm water.

DEAFNESS.—If Recent, to Cure; If Not, to Relieve.—Hen's oil, 1 gill, and a single handful of the sweet clover raised in gardens; stew it in the oil until the juice is all out; strain it and bottle for use.

Where deafness is recent it will be cured by putting three or four drops daily into the ear, but if of long standing much relief will be obtained if continued a sufficient length of time.

2. Much has been said in France about sulphuric ether, first tried by Madam Cleret, of Paris, and although she lost her reason by the elation of feeling brought on, no doubt by the honor given her for the discovery, yet the continued trial of the article does not give the satisfaction which had been hoped for from its first success.

WARTS AND CORNS.—To Cure in Ten Minutes.—Take a small piece of potash and let it stand in the open air until it slacks, then thicken it to a paste with pulverized gum arabic, which prevents it from spreading where it is not wanted.

Pare off the seeds of the wart or the dead skin of the corn and apply the paste and let it remain on ten minutes; wash off and soak the place in sharp vinegar or sweet oil, either of which will neutralize the alkali. Now do not jam nor squeeze out the wart or corn like "street corner peddlers," but leave them alone and nature will remove them without danger of taking cold, as would be if a sore is made by pinching them out. Corns are caused by pressure. In most cases removing the pressure cures the corn. Nine of every ten corns can be cured by using twice daily upon it any good liniment and wearing loose shoes or boots. See Good Samaritan.

2. **Cure for Corns.**—If a cripple will take a lemon, cut off a piece, then nick it so as to let in the toe with the corn, the pulp next the corn—tie this on at night so that it cannot move—he will find next morning that with a blunt knife the corn will come away to a great extent. Two or three applications of this was make a "poor cripple" happy for life.—London Field.

3. Acetic Acid touched to hard or soft corns night and morning for one week will cure them. So will the Samaritan liniment, which see.

4. **Dr. Hariman's Innocent and Sure Cure for Corns, Warts and Chilblains.**—Nitric and muriatic acids, blue vitriol and salts of tartar, of each 1 oz.; add the vlue vitriol, pulverized, to either of the acids and in the same way add the salts of tartar; when done foaming add the other acid and in a few days it will be fit for use.

Directions.—For frosted feet, rub them with a swab or brush; wet with this solution very lightly every part that is red and dry. In a day or two if not cured apply again as before. For corns apply in like manner, scraping off dead skin before using. For warts wet once a week until they disappear, which will be soon, for it is a certain cure in all the above cases and very cheap. So says the Doctor, of Anderson, Ind.

5. A gentleman in Ohio offers to pay ten dollars apiece for all corns not cured in three days by binding a bit of cotton batting upon it and wetting it three times a day with spirits of turpentine.

6. I am assured by a gentleman of Syracuse, N. Y., that a plaster of the "Green Mountain Salve" put upon a corn will completely cure it by the time it naturally comes off.

LINIMENTS.—Good Samaritan, Improved.—Take 98 per cent alcohol, 2 qts., and add to it the following articles: Oils of sassafras, hemlock, spirits of turpentine, tinctures of cayenne, catechu, guaicaci (guac) and laudanum, of each 1 oz.; tincture of myrrh, 4 ozs.; oil of origanum, 2 ozs.; oil of wintergreen, ½ oz.; gum camphor, 2 ozs., and chloroform, 1½ ozs.

I have used the above liniment over five years and cannot speak too highly of its value. I have cured myself of two severe attacks of rheumatism with it, the first in the knee and the last in the shoulder three years after. My wife has cured two corns on the toes with it by wetting them twice daily for a few days, and it is hard to think of anything which it has not cured, such as sprains, bruises, cuts, jams, rheumatism, weak back, reducing swellings, curing leg ache in children from overplaying, for horseflesh, etc., etc. But you will allow me one remark about liniments—they ought in all cases to be put on and rubbed in from twenty to thirty minutes, and laying the hand on the part until it burns from its effects, instead of one or two minutes as is the usual custom; and if made by the quart you can use them freely, as the cost is not more than about one-eighth as much as to purchase the 25-cent bottles. Wetting flannel with the liniment and binding on is a good manner of application. Dr. Hale, of this city, has adopted this liniment for general use, but for headache and neuralgia he takes eight ounces of it and adds an ounce of chloroform and half an ounce of oil of wintergreen, rubbing upon the head, holding to the nostrils, etc. The full prescription will usually cost about two dollars.

2. **Liniment for Old Sores.**—Alcohol, 1 qt.; aqua ammonia, 4 ozs.; oil of origanum, 2 ozs.; camphor gum, 2 ozs.; opium, 2 ozs.;

gum myrrh, 2 ozs.; common salt, 2 tablespoons. Mix and shake occasionally for a week.

This was presented for insertion by H. Loomis, of Edwardsburg, Mich., hoping it might do many others as much good as it had done himself and neighbors. He showed me scars of an old sore on his leg which he had cured with it after years of suffering, and also called up a young man whose father he had cured of a similar sore years before which had never broken out again. He used it twice daily. His leg became sore after a protracted fever. I have great confidence in it. He uses it also for cuts, bruises, horseflesh, inflammatory rheumatism, etc., etc.

3. **Dr. Raymond's Liniment.**—Alcohol, 1 qt.; oils of origanum, 2 ozs., and wormwood, 1 oz., with camphor gum, 2 ozs.; spirits of turpentine, 2 ozs., and tincture of cantharides, 1 oz. Mixed and used as other liniments.

Dr. D. W. Raymond, of Conneaut, Ohio, thinks that the last is the best liniment in the world.

4. **German Rheumatic Fluid.**—Oils of hemlock and cedar, of each ½ oz.; oils of origanum and sassafras, each 1 oz.; aqua ammonia, 1 oz.; capsicum, pulverized, 1 oz.; spirits of turpentine and gum camphor, each ½ oz. Put all into a quart bottle and fill with 95 per cent alcohol.

The Germans speak equally in praise of this fluid as a liniment as Dr. Raymond does of his, besides they say it is very valuable for colic in man or horse. **Dose.**—For colic, for man, half a teaspoon; for a horse, one-half to one ounce in a little warm water every fifteen minutes until relieved.

A gentleman purchased a horse for seventy-five dollars which had been strained in one of the fetlocks; worth before the strain one hundred and twenty-five dollars. He cured him with this liniment and sold him for the original value. He cured his wife of neuralgia with the same liniment since I have published this recipe. Judge ye of its value.

5. **Cook's Electro-Magnetic Liniment.**—Best alcohol, 1 gal.; oil of amber, 8 ozs.; gum camphor, 8 ozs.; castile soap, shaved fine, 2 ozs.; beef's gall, 4 ozs.; ammonia, 3 F.'s strong, 12 ozs. Mix and shake occasionally for twelve hours and it is fit for use.

This will be found a strong and valuable liniment and also cheap. It may be used in swellings, strains, etc., and rubbed upon the throat, breast and lungs in asthma, sore throat, etc.

6. **Liniment for Spinal Affections.**—Take a pint bottle and put into it oil of origanum, wormwood, spirits of turpentine, and gum camphor, of each 1 oz., and fill it with best alcohol.

Mr. Barr, a gentleman with whom I have been acquainted for some four years, has been troubled with spinal weakness and pains and he finds great relief from the use of this liniment. His daughter took it internally for a cough also with success.

7. **Great London Liniment.**—Take chloroform, olive oil and aqua ammonia, of each 1 oz.; acetate of morphia, 10 grs. Mix and use as other liniments. Very valuable.

8. **Gum Liniment.**—Take gum myrrh, gum camphor and gum opium, of each ¼ oz.; cayenne pepper, ½ oz.; alcohol, 1 pt. Mix.

This liniment is ready for use in three or four days and is very highly recommended by E. Burrows, of Matamora, Lapeer County, Mich. He prefers rum, if a good article can be got, in place of alcohol. This would be excellent in colic or diarrhea also.

9. **Patent Liniment.**—In order that those who purchase the patent liniments may know what they are buying I give a formula from which over twelve thousand dollars' worth of liniment was sold in two years' time, but one of the partners going out of the firm and into the livery business gave me the plan as follows:

Take whisky, 15 gals., and put into it 2 lbs. of capsicum, pulverized, let stand 10 days and percolate, or draw off the whisky, free of the sediment; in the meantime take 1 gal. of spirits of turpentine and put into it oils of origanum, horse-mint, sassafras, and hemlock, 6 ozs. each; add gum camphor, 2 lbs. Mix and it is ready to sell, for the purpose of gulling those who suppose everybody to be honest because they are themselves so.

But that no loss may arise from the space this liniment recipe occupies here, I will tell you how to make a good liniment, by using a part of that with the following:

Take of the patent liniment, 8 ozs.; sweet oil and oils of origanum, sassafras and aqua ammonia, of each 2 ozs., and mix, shaking well as used, and this mixture will make a splendid horse liniment, with which you can easily blister, by bandaging the part, if desired, and wetting the bandage with it.

The first would cost less than $1.00 per gallon, while the retail price, 2 shillings per bottle, makes it over $2.00 per quart. See where your money goes.

10. **Lobelia and Cayenne Liniment.**—Take a quart bottle and put into it ¼ oz. of cayenne, pulverized, then put in 2 ozs. of lobelia herb, and fill up the bottle with whisky; in two weeks it is ready for use, and applicable for cuts, bruises, strains, sprains, etc.; and it will heal cork cuts in the feet of oxen or horses, without stopping them from labor, and with but very little soreness, by applying 2 or 3 times daily.

I know a gentleman who had a gash cut in his scalp four inches in length, and to the skull in depth, by a falling limb, which by the use of this liniment only; as strange as it may appear, it healed without pain or soreness. But some may object to it as a whisky liniment. I admit it to be such, but by knowing how to make it yourselves, you get it for a whisky price, and if it be not found as good as one-half of the 2-shilling-a-bottle liniments, then you may tell me that I do not know when I have a good thing.

11. **Liniment.—Said to be St. John's.**—For 70 doz. bottles, take spirits of turpentine and seneca oils, of each, 4 gals.; linseed or sweet oil, 2 gals.; oils of origanum, hemlock, juniper, amber, and laudanum, of each, 3 qts.; spirits of ammonia, 1 qt.; tincture of arnica, 2 gals.; camphor gum, 1 lb. Put all into a keg and shake well; when you wish to fill into small bottles, shake it well and draw into a convenient bottle or pitcher to pour from; and shake it well every time you fill 5 bottles; and shake the bottle whenever you use the liniment; thus it might

be called Shaking Liniment. No matter what you call it, however, it is a good one.

I obtained the recipe of a young gentleman who worked in Mr. St. John's store over a year, yet much care was taken to prevent the knowledge of its exact composition from being found out by assistants; it is a well known fact, however, that an observing mind can learn much, although not expressed in words. Perhaps he will blame me for publishing information gained in that way, but I obtain knowledge for the benefit of the people; and as I have called on the doctor two different times, to sell my work, but could not succeed, I do not feel under any special obligations to him, and if I did, I go in for the greatest good to the greatest number. Were it not so, I should not publish much that is contained in this work, for there are many persons who have and are making fortunes out of single recipes, now published for the benefit of the world.

Because I could not sell my Recipes to I. L. St. John, a druggist of Tiffin, Ohio, however, is not saying that I do not sell them to druggists generally, as I do. In Aurora, Ill., I sold to six, and in Pomeroy, Ohio, to seven, every one in either place, which is not common. They are, however, not only anxious to obtain information generally, but also willing to impart it to others; and how Mr. St. John should have obtained as good recipes as the ones here attributed to him, without sometime having bought, is a little surprising; for, as a general rule, those who put out "Patent Medicines," are not themselves the originators of the recipes; even Dr. Jayne is reported, I know not how truly, to have picked up the recipe, in an out-house, for his celebrated alterative. I say, then, am I not justified in publishing these recipes? Nay, more! am I not honorable in thus benefiting the people? I rest the matter with them; always willing to abide their decision.

Persons only wishing to put up for their own use, will take one-seventieth of the various amounts, which will be about as follows:

Turpentine and seneca oils, of each 7 1-3 oz.; sweet oil and tincture of arnica, of each 3 2-3 ozs.; oils of origanum, hemlock, juniper, amber, and laudanum, of each 1 1-3 oz.; spirits of ammonia, ½ oz.; and gum camphor, ¼ oz.; which makes a little less than 1 qt., there being 64 qts., besides the gum camphor, in the whole amount.

This calculation will be sufficiently near for all practical purposes.

I have sold the condition powder and liniment, out of the drug store, made by the doctor, which has always given good satisfaction. And I think any one who tries both will be as well pleased with those made from these recipes as with that which is sent out from Tiffin, and make it for one-fourth the cost of the other.

COD LIVER OIL.—Made Palatable and More Digestible.—To each bottle, add fine table salt, 1 oz. Mix well.

By this very simple plan cod liver oil has its peculiar unpleasantness overcome, as well as made far more easy for the stomach to dispose of. But even with this improvement, I do not consider a tablespoon of it equal, for consumption, to a glass of rich, sweet cream, with a teaspoon of best brandy in it, to be drank at each meal.

CONSUMPTIVES.—Syrup Very Successful.—Take tamarack bark, without rossing (the moss may be brushed off), 1 peck; spikenard root, ½ lb.; dandelion root, ¼ lb.; hops, 2 ozs. Boil these sufficiently to get the strength, in 2 or 3 gals. of water, strain and boil down to 1 gal.; when blood warm add 3 lbs. of honey and 3 pts. of best brandy; bottle, and keep in a cool place. **Dose**—A wineglass or a little less, as the stomach will bear, 3 or 4 times daily, before meals and at bedtime.

Consumption may justly be called the King of diseases, but he has, many times, been obliged to haul down his colors, and give place to health, and consequent happiness, when he came in contact with the above syrup. It does not, however, contain any of the articles usually put into syrups for this disease —this of itself ought to obtain for it a consideration. I have been told, and that by a professional man, that there was not an article in it of any value for consumption. I have acknowledged it does not contain any articles commonly used for that disease; but allow me to ask if they cure the disease in one case out of a hundred? The answer is, No. I am now using this on a case within a few miles of the city, who had called one of our Professors. He promised benefit, and did benefit about one week; subsequently, two other physicians were also called without any lasting benefit. He had not cut his wood for nearly a year, nor done other labor to any extent; he has now taken our syrup nearly three months; he was weak, spare in flesh, and coughed very much, with cold feet and surface; he is now stout, fleshy, and scarcely any cough; surface and feet warm. What more could be asked? Yet he is very careless, for I called on him on a cold, snowy day lately, and he was in the woods, for wood. Do I need better proof of its value? No one would expect sickness of the stomach to arise from its use, from the articles of which it is composed, but the first dose usually makes the person rather sick at the stomach, and sometimes vomits, but don't fear to continue its use. I had rather trust to tamarack-bark tea than three-fourths of the consumptive syrups of the day. Let every one who is afflicted with cough, be careful to avoid exposure as much as possible. Remember, with this syrup, or disease, as long as there is life there is hope.

But it would be deceptive and wicked to hold out to all consumptives the idea that they could be cured—facts speak like this, although I have never seen it in print, nor heard the remark, but my own observation says that nine of every ten hereditary consumptives, will, in the end, die of the disease, while an equal number of those whose disease is brought on by colds being neglected, or from neglect of acute inflammations, &c., may be cured. Then those who know their parents or others in their family to have gone with the disease, need hardly expect a cure, notwithstanding much benefit may be derived from care, with the above treatment, good diet, and out-of-door exercise, while those whose systems are not tainted from parents may expect a permanent cure.

I shall now throw in a few thoughts of my own, and from the experience of many others in the profession, which I hope may benefit all, needing light on the subject.

First, then—Do not go South, to smother and die; but go North, for cool, fresh air, hunt, fish, and eat freely of the roasted game; cast away care, after having trusted all in Christ, that it may be well, living or dying. Take a healthy, faithful friend with you, to lean upon when needed, in your rambles. So shall it be well with many who would otherwise sink to the consumptive's grave. Have your potatoes with you, and roast them in the embers; your corn meal also, which you will mix with cold water, having a little salt in it, and bake on a board before the fire, and then say you cannot make out a good-flavored meal, and a healthy one also, from your roast venison, or broiled fish, with roast potatoes and johnny-cake. I will then acknowledge that you are indeed far gone on the consumptive's track, and especially if you have been wandering over hills and through the valleys of our northern country in pursuit of the game of which you are about to partake.

Secondly—Do not leave home after having tried everything else in vain, and just ready to wrap the mantle of the grave around you; then you need all the care of many friends, and a quiet place to die; but strike out the first thing when you become certain that permanent disease has fastened upon the lungs; then you may not only reasonably expect a cure, but be almost certain. Have the means with you to avoid getting wet by rains; but often wash and rub the whole surface, wearing flannel next the skin, and clothe yourself according to the weather and sex; for there is no reason why females should not pursue about the same course. They can dress a la Bloomer, and with their father, husband, brother, or other known friend, derive the same benefit from out-door exercise, like field or forest rambles, botanical huntings, geological surveys, or whatever sports or realities may give just the amount of exercise not to fatigue the invalid.

For females who have families and cannot leave them, gardening will be the best substitute for the travel, or of all the employments which can be engaged in.

Lastly—Those who are already far down the consumptive track and confined at home, will derive much benefit by using at each meal, half a pint of rich, fresh cream. In all cases it is ahead of Cod-liver Oil, with none of its disagreeableness. And if it can be borne, a tea, to a table-spoon of the best brandy, may be added.

Much is being said, nowadays, about the necessity of constant inflation of the lungs by long-drawn breaths, holding the breath, also, as long as possible, when thus fully inflated; but, for those whose lungs are extensively diseased, it is not only useless, but very dangerous, from the liability to burst blood-vessels in the lungs, causing hemorrhage, if not instant death. In the commencement of the disease, however, or for those in health, the practice is decidedly good.

2. Half a pint of new milk, with a wine-glass of expressed juice of green hoarhound, each morning for a month, is said to have worked wonders in relieving the soreness of the lungs and giving tone to the general health in this disease.

3. **Chlorate of Potash, for Consumption.**—A gentleman of Iowa read a paper about a year ago before the "American Medical Association," upon the subject of Chlorate of Potash in Consumption, giving the history of a few cases only. For the want of a more extended trial of it, the Association thought best not to publish his paper, but referred it back to him and to the consideration of the other members for further test.

Among those members is Dr. A. B. Palmer, of this city, one of the Vice-Presidents of the Association, and Professor of "Practice, Materia Medica," &c., in the University of Michigan, at Ann Arbor—by the way, a gentleman and a scholar. Having had much experience in practice, he saw fit to give it a trial. He has used it in about thirty cases, and with a single exception with marked success; and in that case there was at first much improvement, but the patient was a German who does not understand our language very well, and from this fact when he found that it caused a burning sensation in the stomach, instead of going to the Professor and having the quantity lessened, he abandoned it altogether. But through Prof. Palmer's kindness I have been permitted to refer to other cases where a very marked amelioration has taken place. One of these, a married lady, although her lungs were full of tuberculosis, with much coughing, soreness of the lungs, with sharp pains upon full breaths being taken, &c., finds her cough loose, soreness all gone, and that full breaths can be taken without pain (or stitching, as commonly called), and fully believes that if she could have had this prescription early in the disease, she would now have been well, yet derives much relief from its use. Another lady has been using it only a few months, and finds that her symptoms are all very much relieved, and she has gained seventeen pounds in flesh.

The Professor assures me that in the first cases where he prescribed the chlorate, the benefits were so marked, it was really astonishing; which, of course, caused him to go on in its use, until, as before remarked, about thirty cases have been more or less benefited by its use, under his care.

His method of giving it is to put about a teaspoon of the chlorate into a glass of water, which is to be drank a little at a time, in from six to twenty-four hours, with other appropriate treatment.

If in any case the chlorate should cause a heat or burning sensation at the stomach, lessen the quantity; and unless this does occur, no apprehensions need be felt in using it. It improves the general symptoms, lessening one's pulse, &c., while the Cod-liver Oil has never done anything more than to benefit merely as food; and from its very disgusting smell and taste and the almost impossibility of keeping it upon the stomach, I greatly prefer the fresh sweet cream mentioned above, or the fat meat, as mentioned below.

The hyper-phosphites have been extensively used, but Prof. Palmer tells me that in Paris and other parts of Europe, where he traveled during the past summer, that not one well authenticated case of cure by them can be produced. But he feels much encouraged to hope that the chlorate will prove itself worthy of great confidence.

The above was written one year ago; and the reports coming in since then, both in America and from Europe, more than confirms the expected benefits and hoped-for advantages from the use of the chlorate in this disease.

4. **Remarks on the Use of Fat Meats—Preventive of Consumption.**—There is so much said against the use of fat meats, and especially pork, as an article of diet, that I cannot better close my remarks upon this subject than by giving the opposite opinions of those in high places, corroborated also by my own experience.

Dr. Dixon, of the Scapel, some time ago, assumed the position that "the use of oils would diminish the victims of consumption nine-tenths, and that that was the whole secret of the use of Cod-Liver Oil, to take the place of fat meats."

Dr. Hooker's observations on the use of fat meats, connected with consumption, are as follows:

"**First**—Of all persons between the ages of 15 and 22 years, more than one-fifth eat no fat meat. **Second**—Of persons at the age of 45, all, excepting less than 1 in 50, habitually use fat meat **Third**—Of persons who, between the ages of 15 and 22, avoid fat meat, a few acquire an appetite for it, and live to a good old age, while the greater portion die with phthisis (consumption) before 35. **Fourth**—Of persons dying with phthisis between the ages of 12 and 45, nine-tenths, at least, have never used fat meats."

"Most individuals who avoid fat meat, also use little butter or oily gravies, though many compensate for this want in part, at least, by a free use of those articles, and also milk, eggs, and various saccharine substances. But they constitute an imperfect substitute for fat meat, without which, sooner or later, the body is almost sure to show the effects of deficient calorification."

A lady-lecturer recently said in this city, in one of her lectures—"Set a piece of pork before a lady; oh, horrible! the dirty, nasty, filthy stuff; give us chicken—clean, nice chicken." Now this lady, certainly, was no farmer's wife, or she would have observed that the habits of chickens are ten times more filthy than that of the hog, if it be possible; for even the hog's leavings and droppings are carefully overhauled by them, and much of it appropriated to "Ladies meat." But their filthiness is no argument in either case; for nature's strainer (the stomach) throws off all impurities. Why do so many young ladies, young clergymen, and students die of consumption? Simply because chicken or other lean meats, hot biscuit, &c., without exercise, make up the sums of their diet; when, if they would eat fat meats, with bread not less than one day old, scrub floors, saw wood, or other arm exercise, according to sex, an hour at each end of each day, they might be spared for years—perhaps to long lives of usefulness, to their families, congregations, or the world.

5. So far as pork is concerned as food, the following rule may be safely followed: If it agrees with the stomach, which is known by its digesting without "Risings," as it is called, its use may be continued, but if it rises, lessen the quantity, and if it still rises, abandon its use altogether; but it digests better with me than mutton, or chicken, and I have been trying them for nearly fifty years. The same rule is good for all articles of food. As to exercise, for men who are not regular laborers, wood-sawing is the best, next, horseback riding, then walking; for women, hoeing in the garden or field, next sweeping, dusting, &c., then horseback riding, walking, &c.

6. But I have recently seen a piece going the rounds of the papers as the best cure for consumption in the world, which contains so much good sense that I will close my remarks on the subject by giving it a quotation, and let every one judge for themselves, which to try, if they see fit to give either a trial. It is represented as coming from an exchange only, but from its style of remark, I think it must have started from Hall's Journal of Health:

"Eat all that the appetite requires of the most nourishing food, such as fresh beef, lamb, oysters, raw eggs, fruit, vegetables, and 3 times a day take a glass of egg-nog, made as rich as the patient can bear. Avoid all other alcoholic drinks. Bathe twice a week in water made agreeably warm, and in a warm room; after bathing rub the body and limbs with sweet cream or sweet oil. Exercise daily in the open air; walking is the best. Stand erect, exercise the arms and lungs freely, keep the mind cheerful; take freely of the best cough syrup, and consumption will be a stranger to your household.

"For making the best cough syrup, take 1 oz. of thoroughwort; 1 oz. of slippery elm; 1 oz. of stick licorice, and 1 oz. of flax seed; simmer together in 1 qt. of water until the strength is entirely extracted. Strain carefully, add 1 pt. of best molasses and ½ lb. of loaf sugar; simmer them all well together, and when cold bottle tight. This is the cheapest, best, and safest medicine now or ever in use."

"A few doses of one tablespoon at a time will alleviate the most distressing cough of the lungs, soothes and allays iritation, and if continued, subdues any tendency to consumption; breaks up entirely the whooping cough, and no better remedy can be found for croup, asthma, bronchitis, and all affections of the lungs and throat. Thousands of precious lives may be saved every year by this cheap and simple remedy, as well as thousands of dollars which would otherwise be spent in the purchase of nostrums which are both useless and dangerous."—Exchange. For egg-nog see 'Stimulant in Low Fevers."

OINTMENTS.—For Old Sores.—Red precipitate ½ oz.; sugar of lead ½ oz.; burnt alum 1 oz.; white vitriol, ¼ oz., or a little less; all to be very finely pulverized; have mutton tallow made warm ½ lb.; stir all in, and stir until cool.

Mr. Brownell, of Dowagiac, Mich., thinks there is no ointment equal to this for fever or any other old sores, from actual trial, as much so as Mr. Loomis does of his Liniment No. 2.

2. **Judkins' Ointment.**—This ointment has been long celebrated through Ohio and the Eastern States. It was invented and put up by an old Doctor of that name, whose family took to the profession of medicine as naturally as ducks to water. I obtained it of one of the sons, who is practicing at Malaga, Ohio, from whom I also obtained Landolfi's and his own method of curing cancer (see those recipes), and he always uses this ointment to heal cancers and all other sores:

Linseed-oil 1 pt.; sweet oil 1 oz.; and boil them in a kettle on coals for nearly 4 hours, as warm as you can; then have pulverized and mixed, borax ½ oz.; red lead 4 ozs., and sugar of lead 1½ ozs.; remove the kettle from the fire and thicken in the powder; continue the stirring until cooled to blood heat, then stir in 1 oz. of spirits of turpentine; and now take out a little, letting it get cold, and if not then sufficiently thick to spread upon thin, soft linen, as a salve, you will boil again until this point is reached.

He says, and I have no doubt of it, that it is good for all kinds of wounds, bruises, sores, burns, white swellings, rheumatisms, ulcers, sore breasts, and even where there are wounds on the inside, it has been used with advantage, by applying a plaster over the part.

3. **Sisson's Ointment.**—Best brandy ½ pt.; turpentine 1 gill; camphor gum 1 oz.; beef's gall ½ pt.; (beef's gall bottled with ¼ alcohol will keep nice for future use,) neats-foot oil 1 pt. Mix.

This ointment, or properly liniment, is probably not equaled for reducing swellings which arise from bad bruises, or swellings of long standing; rub it in for quite a length of time, then wet a flannel in it and wrap around the parts.

4. **Green Ointment.**—White pine turpentine and lard ½ lb. each; honey and beeswax ¼ lb. each; melt all together and stir in ½ oz. of very finely pulverized verdigris.

In deep wounds and old sores this works admirably, it keeps out proud flesh and heals beyond all calculation, keeping up a healthy discharge. It was used on a horse, which had run upon a fence stake, the stake entering under the shoulder blade and penetrating eighteen inches alongside of the ribs; the ointment was introduced by stiffening linen cloth with warm beeswax, and rolling it up into what is called a tent, then smearing the ointment upon the tent, and pushing it to the bottom of the wound, which kept the outside from healing until it healed from the bottom, and thus saved the horse, which everybody said must die; and of course everybody always knows. The man owning the horse was thrown from his buggy whilst the horse was running, and had his leg broken; the horse was well before the man. Hiram Sisson, an old farrier and farmer, of Crown Point, Essex Co., N. Y., has used this and the one bearing his name, No. 3, several years, and speaks of them in the highest terms. Mr. Wykoff, a few miles north of this city, has used this green ointment for several years, curing a deep cut in the thigh of a friend in a few days with it, which induced him to pay ten dollars to an English lady for the recipe; since then he cured a bad case of chilblains, with it, upon a German boy who had not worn a boot or shoe for three years, on their account. I have now known it for two years, curing cuts on horses' feet, from stepping over corn stubble in spring ploughing, by only a few applications. It is worth more than the cost of this book to any family who has not got it.

This, mixed with equal parts of the "Magnetic," No. 11, and the world cannot beat it for general use.

5. **Green Ointment.**—Honey and bees-wax, each ½ lb.; spirits of turpentine 1 oz.; wintergreen oil and laudanum, each 2 ozs.; verdigris, finely pulverized, ¼ oz.; lard 1½ lbs.; mix by a stove fire, in a copper kettle, heating slowly.

I have given this green ointment, varying somewhat from the first, obtained of a gentleman at Jamestown, N. Y., who was selling it in large quantities, as he uses the spirits of turpentine instead of the white pine, for that frequently is hard to get, and by some this will be preferred, for the flesh of a few persons will inflame under the free use of verdigris, and it will be seen that this last recipe has not near as much of it in as the first.

6. **Dr. Kittredge's Celebrated Ointment.—For Pimpled-Face, Prairie-Itch, &c.**—Take a pint bottle and put into it nitric acid 1 oz.; quicksilver 1 oz., and let stand until the silver is cut; then melt lard ½ lb. in an earthen bowl and mix all together, and stir with a wooden spatula until cold.

Old Dr. Kittredge is an Allopathic Physician, but his ointment has been known, over the whole State, as death to the "Michigan or Prairie Itch," and the Doctor recommends it for Cancers, Scrofulous and Syphillitic Ulcers, also Salt Rheum, Ringworms, "Pimpled Face," Chronic Inflammation of the eyelids, &c. **Application.**—For cutaneous eruptions, scratch off the scab, warm the cerate, rub in thoroughly once a day; for running ulcers, spread a thin plaster, and not change oftener than once in thirty-six or forty-eight hours.

7. **Mead's Salt-Rheum Ointment.**—Aquafortis 1 oz.; quicksilver 1 oz.; good hard soap dissolved so as to mix readily 1 oz.; prepared chalk, 1 oz.; mixed with 1 lb. of lard; incorporate the above by putting the aquafortis and quicksilver into an earthen vessel, and when done effervescing, mix with the other ingredients, putting the chalk in last, and add a little spirits of turpentine, say ½ tablespoon.

Mr. Mead is a resident of this city, advanced in age, over ninety years, and great confidence may be placed in this recipe. He sent it for insertion in the seventh edition of this work, and many have tried it with satisfaction. He first proved it on himself, after suffering with Salt-Rheum for ten years; at first it came back after two years; he then cured it again, and now has been free from it about fourteen years. His only object in presenting me the recipe was to do good to his fellow-creatures. Some physicians think that if nitric acid one ounce and three drachms, was put upon the quick-silver, and cut or dissolved by gentle heat, that it would be a better way to prepare it; but I never wish to change when an article works as well as this does.

8. Dr. Gibson, of Jamestown, Pa., says he has never failed in curing salt-rheum or leprosy (meaning very bad skin diseases) with the following:

First, wash the part with Castile soap and water, dry with a soft cloth, then wet the parts erupted with the tincture of iodine, and after this gets dry, anoint with citron ointment. When the eruption exists about parts not covered with clothing, use the following wash alternately with the tincture: Corrosive sublimate, 1 dr.; sugar of lead, 3 ozs.; white vitriol, 2 scruples; salammoniac, 3 drs.; common salt, 2 drs.; soft water, 1 pt.; mix.

He had a case—a young gentleman who was engaged to be married, but the lady would not marry him until cured from the fact that a sore of a leprous or obstinate character surrounded his head where the hat came in contact with it. But patience and nine months' perseverance removed the scab from his crown, and crowned him with a help-meet.

Let me here say, that in any disease of long standing, use some of the alterative medicines to cleanse the blood, while using the outward applications. The "Cathartic Alterative" is especially adapted to these skin diseases, and should be continued some time, even if you are not anxious to get married. The Citron Ointment is kept by nearly all Druggists.

9. White lead in sweet oil, used as an ointment, cured a lady in Lafayette, Ind., of a bad case of Salt-Rheum.

10. **Itch Ointment.**—Unsalted butter, 1 lb.; Burgundy pitch 2 oz,; spirits of turpentine, 2 ozs.; red-precipitate, pulverized, 1¼ ozs.; melt the pitch and add the butter, stirring well together; then remove from the fire, and when a little cool add the spirits of turpentine, and lastly the precipitate, and stir until cold.

This will cure all cases of psora, usually called "The Itch," and many other skin eruptions, as pimples, blotches, &c.

Dr. Beach thinks the animal which infests the skin, in real itch, is the result of the disease, whilst most authors think it the cause.

11. **Magnetic Ointment.—Said to be Trask's.**—Lard, raisins, cut in pieces, and fine-cut tobacco, equal weights; simmer well together, then strain and press out all from the dregs.

The above is an excellent ointment, and looks like its namesake, and its action is really magnetic. Mix this in equal parts with the first Green Ointment No. 4, and it will make a good application in Piles, Salt-Rheum, and all cutaneous or skin diseases, as well as cuts, bruises, &c. If used in Salt-Rheum, some of the alterative remedies must be taken at the same time, and long continued.

12. **Stramonium Ointment.**—The probability is, that for general use, no ointment will be found superior to this, when properly made. It is kept by most druggists, but it is not half as good, generally, as if made by the following directions. I give large proportions, from the fact that it will be used in large

quantities. Stramonium is known by the names of "Jimpson," "Stink-Weed," "Thorn-Apple," &c., from its thorny burr.

Pick about a bushel of the leaves, while yet green, having a suitable iron kettle placed over a slow fire; put in a few of the leaves and mash them as you keep adding until you get them all mashed into a pulpy mass, then put in lard, 5 lbs., and stew to a crisp; then strain and box for use. Those who live in towns and prefer to make it with less trouble, will purchase 1 dr. of the soft extract, kept by druggists, rubbing it with a little water until it is of such a consistence as to allow it to be rubbed into an ointment with lard 1 oz. This will be better than the sale ointment, but not as good as the "Home Made," above.

It is anodyne, (relieves pain,) in burns, scalds, old irritable ulcers, skin diseases, painful hemorrhoids, (Piles,) and is discutient, (driving away swellings,) and very strengthening to broken limbs, i. e., after the bones are healed to rub over the limb freely, and thoroughly; it reduces the swelling and gives tone to the muscles, tendons, &c.

We have recently known two cases of fracture, one a compound fracture of the ankle, the other of the wrist, both in persons well advanced in life; in both cases strength returned very slow, but with double speed by the free application of this ointment; and in the first case it undoubtedly prevented mortification. It is valuable, also, in painful or swelled rheumatism. Or, perhaps what would be preferable, in such cases, is a tincture made of the seeds from the horny-burr, two ounces, to alcohol and water, of each, a half-pint. If it is not found ahead of the "Tincture of Arnica," I will give you my head for a "Foot-Ball." In applying it, wet cloths or brown paper, and bind upon the parts, keeping them well wet. To make this tincture, see "Tinctures."

13. **Toad Ointment.**—For sprains, strains, lame-back, rheumatism, caked breasts, caked udders, &c., &c.

Good sized live toads, 4 in number; put into boiling water and cook very soft; then take them out and boil the water down to ½ pt., and add fresh churned, unsalted butter, 1 lb., and simmer together; at the last add tincture of arnica, 2 ozs.

This was obtained from an old Physician, who thought more of it than of any other prescription in his possession. Some persons might think it hard on toads, but you could not kill them quicker in any other way.

JAUNDICE.—Dr. Peabody's Cure.—In its Worst Forms.—Red iodide of mercury, 7 grs.; iodide of potassium, 9 grs.; aqua dis. (distilled water,) 1 oz.; mix. Commence by giving 6 drops 3 or 4 times a day, increasing 1 drop a day until 12 or 15 drops are given at a dose. Give in a little water immediately after meals. If it causes a griping sensation in the bowels, and fullness in the head when you get up to 12 or 15 drops, go back to 6 drops, and up again as before.

In two very bad cases of jaundice, I have known the above to be entirely successful.

I am aware that many persons will not use any preparation containing mercury in any of its forms, while there are many others who would use them for that very reason; my object is to benefit all, without strengthening the prejudice of any; for this reason I give you the following:

2. **Drink for Jaundice.**—Tie up soot and saffron, equal parts, in a cloth to the size of a half of a hen's egg, let it lie in a glass of water over night; in the morning put the yolk of an egg, beaten, into this water and drink it. Do this 3 mornings, skipping 3, until 9 doses have been taken.

I am assured that it has proved successful in many bad cases. See also Soot Coffee, No. 12, amongst the Ague remedies.

PILES.—Successful Remedies.—Internal Remedy.—Cream of tartar, jalap pulverized, senna and flowers of sulphur, 1 oz. each; nitrate of potash, (saltpetre,) ½ oz.; golden seal, 1 oz.; thoroughly pulverize all together, in a mortar, and give a teaspoon three times a day, or the dose may be varied to suit the condition of the patient, taking more or less to suit circumstances, keeping the bowels in a solvent state.

External Application.—Inner bark of the white oak tree, boil and strain, and boil again until you obtain ½ pt. of the oil of the oldest and strongest bacon you can procure; simmer together until a union takes place when cold. Then apply by the finger up the rectum every night until well. Be very strict to abstain from strong and stimulating diet. The above is a sure cure for blind or bleeding piles, in all cases, sooner or later.

Dr. Hariman, of Andersontown, Ind., has been very successful with this plan of treating Piles; and since I obtained the plan, now two years, I have had one opportunity of proving its efficiency, upon a gentleman who had been laid up for days, and sometimes weeks, with the complaint; by a few applications of the external remedy he has been enabled to keep directly along with his labor.

2. **Pile Cerate.**—Carbonate of lead, ½ oz.; sulphate of morphia, 15 grs.; stramonium ointment, 1 oz.; olive oil, 20 drops. Mix, and apply 3 times a day, or as occasion and pain may require.

This cerate has been highly celebrated as a remedy in Piles. It will relieve the pain most assuredly. Piles have been cured with lamp oil applied to the parts two or three times a day. Even tallow, or any simple ointment, is good for dry Piles, that is, for pain in those parts, coming on often in the dead of night, without apparent cause.

3. **For External Piles.**—The following is very highly spoken of: Take oyster shells, wash and burn them, then finely pulverize and rub up with fresh lard; anoint with this, and take internally sulphur one ounce, mixed with three ounces of pulverized rosin; take night and morning what will lay on a five cent piece. Take every day for the first week, then every three or four days, until well, continuing the ointment.

4. **Mrs. Morehead.**—Of Danville, Ind., cured herself of Piles by simply sitting in a hip-bath of warm water, every time the pains would come on, after stools, or any other time, remaining in the bath until the pains left her. Her husband cured himself by sitting in cold water, and using upon the parts an ointment

made by stewing celendine in fresh lard. I give these various plans, so that if one fails, a remedy may certainly be found amongst the many given.

5. **G. P. Rogers**, of Ironton, O., has known cases cured by using the following ointment: Powdered opium and powdered rosin, one ounce each, mixed with one ounce of tallow, and anoint as required.

6. **Dr. D. W. Raymond**, of Conneaut, O., says: Equal weights of glycerine and tannin will cure Piles, by anointing with it, and that very speedily; also cures sore or cracked nipples in twenty-four hours, and is remarkably good for any excoriation, or sore, of the skin. I know that simple tallow introduced into the rectum is exceedingly beneficial in Piles, which satisfies me that any preparation containing oil or any kind of grease, is good.

7. I have found in the scrap of an old newspaper, the following, and it is so easily tried, and speaks with so much certainty, and is so simple, that I give it an insertion:

"**Simple Cure for Piles.**—Mix one table-spoon of sulphur with half a pint of milk, to be taken every day until favorable symptoms appear, and then occasionally, as the case may require. The above is a cheap, simple, and most infallible cure for that most painful and unpleasant disorder. It has been used with complete success in old and inveterate cases where individuals had spent scores of dollars in medical advice. It is equally useful as a preventive. It will injure none, and only requires a trial."

8. **Paschal Mason**, living near this city, cured a Southern lady, visiting in the neighborhood, who was confined to the bed with them, by making a strong tea of the wild swamp-currant root, drinking occasionally for a few days only.

9. **Jimpson Leaves** and parsley, a handful of each, stewed in lard, one pound, and used as an ointment, has cured many cases.

ANODYNES—Hoffman's Anodyne, or Golden Tincture.—Sulphuric ether, 2 ozs.; alcohol, 4 ozs.; and etherial oil, ¾ dr.; mix. **Dose**—From half to two tea-spoons (½ dr. to 2 drs.), according to the urgency or pain for which it is given.

It is given in a little sweetened water, and much preferred by the Germans to laudanum, especially where laudanum causes sickness of the stomach. It makes an excellent local application in neuralgia and other painful affections, being second cousin to the Magnetic Tooth Cordial and Paralytic Liniment.

2. **Laudanum.**—Best Turkey opium, 1 oz.; slice and pour upon it boiling water, 1 gill, and work it in a bowl or mortar until it is dissolved; then pour it into the bottle, and with alcohol of 76 per cent proof, ½ pt.; rinse the dish, adding the alcohol to the preparation, shaking well, and in 24 hours it will be ready for use. **Dose**—From 10 to 30 drops for adults, according to the strength of the patient, or severity of the pain.

Thirty drops of this laudanum will be equal to one grain of opium. And this is a much better way to prepare it than putting the opium into alcohol, or any other spirits alone, for in that case much of the opium does not dissolve. See the remarks occuring after Godfrey's Cordial.

3. **Paregoric.**—Best opium, ½ dr., dissolve it in about 2 table-spoons of boiling water; then add benzoic acid, ½ dr.; oil of anise, ½ a fluid dr.; clarified honey, 1 oz.; camphor gum, 1 scruple; alcohol, 76 per cent, 11 fluid ozs.; distilled water, 4½ fluid ozs.; macerate, (keep warm,) for two weeks. **Dose**—For children, 5 to 20 drops, adults, 1 to 2 tea-spoons.

Used as an anodyne and antispasmodic, allays cough, relieves nausea and slight pains in the stomach and bowels, checks diarrhea, and procures sleep. Used principally for children. See the remarks after No. 5, below.

4. **Bateman's Pectoral Drops.**—Opium in powder, catechu in powder, camphor gum, red saunders, rasped, of each, ½ oz.; oil of anise, 1 dr.; dilute alcohol (alcohol of 76 per cent and water in equal proportions,) 1 gal. Keep warm for 2 weeks.

The opium strength of this is about equal to paregoric, and it is used for similar purposes, and doses. See the remarks below.

5. **Godfrey's Cordial.**—Dissolve pure carbonate of potassa, 1 oz., in water, 5 qts., and add nice golden syrup or best molasses, 3 qts., and heat until they begin to simmer; take off the scum, and add laudanum, 9 ozs., and oil of sassafras, 1 dr. Mix well. Used similar to the two last.

Remarks.—It is a well known fact that much injury is done to children by the use of anodynes, such as the above, and "Mrs. Winslow's Soothing Syrup," which is now taking the place, to a great extent, in towns of the foregoing, for I noticed a short time ago eighty-seven empty bottles with Mrs. Winslow's label upon them, sitting on a counter of one of our drug stores, which led me to ask if they put up her syrup. The answer was no, a lady in this city has fed that much to one child within the past eighteen months.

The question might be asked, why do you tell people how to make any of these anodynes? Because they are good in proper cases, when properly used, and to give a place for these remarks; for those who are evil disposed will find a way to accomplish their designs, whilst the well disposed will, or can, act only from knowledge, and if they do not know the evils arising from the constant use of anodynes on children, are as liable to do evil as the evil disposed.

Then let it be remembered that the constant use of opium in any of its preparations on children, or adults, disturbs the nervous system, and establishes a nervous necessity for its continuation. Then use them only in severe pain, or extreme nervousness, laying them by again as soon as possible under the circumstances of the case. Of course we do not give a recipe for the Soothing Syrup spoken of, as its exact composition has not yet come out to the public; but that its soothing properties are owing to opium, there is not the least doubt. See "Carminatives," which are preferable to opiates, especially for children.

RHEUMATISMS.—Inflammatory Rheumatism—Bill Wright's.

and other Cures.—Sulphur and salt-petre, of each 1 oz.; gum guaiac, ½ oz.; colchicum root, or seed, and nutmegs, of each, ¼ oz.; all to be pulverized and mixed with simple syrup or molasses, 2 ozs. **Dose**—One teaspoon every 2 hours until it moves the bowels rather freely; then 3 or 4 times daily until cured.

Mr. Wright, of the Niagara Hotel, Toledo, O., has several times proved this to be an excellent medicine, and since I obtained it I found a man at Marshall, Mich., one Saturday evening, with his feet and legs so swollen with this disease, that he could but just crawl with two crutches. I filled this prescription and gave him a teaspoon of it every two hours, until it moved his bowels, then every four hours, and on Monday noon he could walk quite comfortably without cane or crutch, the medicine costing only twenty cents.

2. **Rheumatic Alterative.**—In Rheumatism of long standing, the following preparation has often proved very valuable:

Colchicum seed and black cohosh root, of each ½ oz., the root to be bruised; best rye whisky, 1 pt.; put together and let stand 3 or 4 days. **Dose**—From one teaspoon to a tablespoon 3 times daily before meals.

The action will be to loosen the bowels or cause a little sickness at the stomach; and the dose may be modified not to cause too great an effect upon the patient either way, but increasing the dose if necessary until one of those specific actions is felt, and lessening it if the action is too great in any case.

3. **Rheumatic Liniment.**—Olive oil, spirits of camphor and chloroform, of each 2 ozs.; sassafras oil, 1 teaspoon. First add the oil of sassafras to the olive oil, then the spirits of camphor, and shake well before putting in the chloroform, shaking when used, keeping it corked, as the chloroform evaporates very fast if left open. Apply 3 or 4 times daily, rubbing it well and always toward the body.

I had a brother-in-law cured of a very bad case of inflammatory or swelling rheumatism by the use of this liniment—accomplished in about four days, without other treatment. He paid five dollars for the recipe after the cure. But I would recommend the use of this in connection with "Bill Wright's Cure" above, feeling perfectly assured that no attack will stand before the internal and external combination.

4. **J. B. Hitchcox**, Ypsilanti, Mich., uses spirits of turpentine, 1 pt.; tar, 2 teaspoons; oil of vitriol, 1 teaspoon, mixing in a mug; then set them on fire, letting it burn 15 minutes, and bottle for use.

He bathes the parts freely twice daily with this preparation, then binds on the mashed tory-weed, as mentioned under the head of "Reducing Swellings," and gives a little spirit of turpentine internally.

5. **Alvah Raymond**—Takes rum, 1 pt.; neats-foot oil, ½ pt., or if the joint is stiff, skunk's oil instead of the other; spirits of turpentine, 1 gill, and simmers them together, and bottle for use, rubbing it in thoroughly 3 times daily.

He also directs to soak the feet in hot water, scraping the bottoms of the feet with an old knife; then he has poke root roasted and mashed, mixing with it tar and sulphur to form drafts for the feet. With this method of treatment he assures me he has been very successful for 30 years. And it bears so strong a resemblance to Dr. Kittredge's preparation, next following, for stiffened joints in rheumatism, that it gives me double confidence in them both.

6. **Dr. Kittredge's Remedy for Rheumatism and Stiff Joints.**—Strong camphor spirits, 1 pt.; neats-foot, coon, bear or skunk's oil, 1 pt.; spirits of turpentine, ½ pt. Shake the bottle when used and apply 3 times daily by pouring on a little at a time and rubbing in all you can for 20 to 30 minutes.

The old Doctor recommends this as a sure cure for chronic rheumatism, sprains, stiff-joints where they have not formed an anchylosis—that is, if the bones have not actually grown together; and, as remarked in connection with his ointment, No. 6, he has been a very celebrated Physician for many years; but like many other men with superior minds—oh, how fallen! Rum and its advocates have got a most fearful account to balance.

7. **French and Other Remedies for Chronic Rheumatism.**—Dr. Bonnet, of Graulbet, France, states in a letter to the Abeille Medicale that he "has been long in the habit of prescribing:

"The essential oil of turpentine for frictions against rheumatism. And that he has used it himself with perfect success, having almost instantaneously got rid of rheumatic pains in both knees and in the left shoulder."

He was led to make the prescription from having used the oil of turpentine to wash coal-tar and other sticking mixtures from his hands. After having washed his hands in soap and water, and drying them, a pricking sensation like an electric spark upon the knuckles from a machine, lasting about two hours. was always experienced, and it is to this exciting action that he attributes its efficacy. It may be used twice or thrice daily.

8. Chronic rheumatism has been cured in 24 hours after two years' suffering by using alcohol, spirits of turpentine, sweet spirits of nitre and oil of juniper, equal parts of each; mix; rub well into the parts and take ten drops at bed time in water.

9. **Bitters for Chronic Rheumatism.**—Prickly-ash berries, spikenard root, yellow poplar and dog-wood barks, of each ½ lb.; all pulverized and put into a gallon jug, and fill it up with brandy. **Dose**—A wine-glass of it is to be taken 3 times daily before meals.

A baker of Lafayette, Ind., was cured by the use of this amount of a very bad case of this disease of long standing.

10. **David Mowry**, of Greenville, Ohio, says yellow poplar, dog-wood, prickly-ash, wild cherry and white-ash barks of the trees, equal quantities of each, a good large handful, boiled in 2 gals. of water, to 1, and add 1 gal. of good old rye, will if taken freely 3 times daily cure the worst inflammatory rheumatism in the world.

There is no question but what both of these preparations, and the next also, are good, if made sufficiently strong with the barks. But I should consider them much more applicable in chronic cases, or rheumatism of long standing; and in these cases very applicable indeed, and I am well satisfied that no one will take them for the spirits.

11. **Chronic Rheumatism** has been cured by taking the bark of a bearing crab-apple tree and putting a sufficient amount of it into whisky to make it very strong, then taking a wine-glass three times daily until a gallon was used.

12. **Green Bay Indian's Remedy for Rheumatism.**—Wahoo, bark of the root, 1 oz.; blood root, 1 oz.; black cohosh root, 2 ozs.; swamp hellebore, ½ oz.; prickly ash, bark or berries, 1 oz.; poke root, cut fine, 1 oz.; rye whisky, 1 qt.; let stand a few days before using. **Dose**—One teaspoon every 3 or 4 hours, increasing the dose to 2 or 3 teaspoons as the stomach will bear.

Soak the feet well and go to bed, covering up warm and taking the "Sweating Drops" between each dose, as there directed, for three or four hours, and repeat the sweating every day until the disease surrenders to the treatment. If at any time the head feels too full, or the stomach sickens too much, drop down to the first dose of a teaspoon, or even less, if necessary.

This prescription is from Jacob S. Cornelius, an Indian of Green Bay, who was very successful in Illinois with it in this disease.

13. I know an old physician who assures me that he has cured cases where all other remedies failed with saltpetre, beginning with 20 grains, and doubling the dose every three or four hours, until it reached half an ounce, in a very robust and plethoric patient; but this dose would be too large to venture upon by persons not of a plethoric habit. But as it is mostly prescribed by putting a tablespoon to a pint of whisky, then a teaspoon for a dose, you might as well expect to dip the Atlantic into the Pacific with a teaspoon as to cure rheumatism in that slow way. It may be taken in quantities from half an ounce to an ounce and a half in 24 hours, being largely diluted with water. If pain should come on in the stomach under its use, stop it at once, and give large quantities of mucilaginous drinks, such as slippery-elm water, gum-arabic water, flaxseed tea, etc.

14. **New Remedy.**—Kerosene oil, 3 ozs.; skunk's oil, 1 oz.; mix and shake when applied. Put it on quite freely and heat it in by the stove or by means of a hot shovel.

A firm of grocers, Slawson & Geer, of this city, have been using this mixture during the past winter upon their own persons, and have recommended to many others, amongst them one of the Clergymen, and also the President of the University, and so far as they know it has proved very successful, relieving the pain directly.

15. One of our physicians in the city has used a preparation very nearly resembling the above, but varying sufficient to satisfy myself that any other animal oil will do as well as that from the highly-flavored one above mentioned.

He used kerosene oil, 2 ozs.; neats-foot oil, 1 oz.; oil of origanum, ½ oz.; mixed and shaken as used.

The smell of the kerosene is not very pleasant, but if a pair of ankles and feet, badly swollen, so much so that you could not walk on them for months, could be cured in two or three weeks, as it was in this case, it might be well to put up with its disagreeable smell. Rub and heat it in thoroughly twice daily.

ASTHMA.—Remedies.—Elecampane, angelica, comfrey and spikenard roots, with hoarhound tops, of each 1 oz.; bruise and steep in honey, 1 pt. **Dose**—A tablespoon, taken hot every few minutes until relief is obtained, and then several times daily until a cure is effected.

It cured a young lady, near the "Falls of the Ohio," whom the doctors said it was wicked to disturb; "let her die in peace," was their advice to the parents. An old lady, instead, let her live in peace. It will be found very excellent in any cough; even low consumptives will find great relief from its use.

2. Dr. J. K. Finley, of Pittsburg, cured a lady with whom I afterward became acquainted, and from the completeness of the cure I was induced to write to the doctor and obtain the prescription. It is as follows:

Oil of tar, 1 dr.; tincture of veratrum viride, 2 drs.; simple syrup, 2 drs.; mix. **Dose**—For adults, 15 drops 3 or 4 times daily.

I have very great confidence in this prescription.

3. A lady at Yellow Springs, Ohio, tells me that she cured herself of Asthma by using for her common drink a tea made of the leaves of common chestnut, which had fallen from the tree in autumn; sweeten well and continue its use for 2 or 3 months.

She used it for a month at first, and it returned, when she continued its use for two months; and ten years have elapsed without its return. It is certainly safe as well as simple and of easy trial.

Lobelia is considered by some a specific in Asthma, but the prejudice against it is so great I forbear speaking further of it; but:

4. Iodid of potassium has cured a bad case of Asthma, by taking 5 gr. doses, 3 times daily. Take ⅛ oz. and put it into a vial and add 32 teaspoons of water—then 1 teaspoon of it will contain the 5 grs., which put into ½ gill more of water, and drink before meals.

COMPOSITION POWDER.—Thompson's.—"Bayberry bark, 2 lbs.; hemlock bark, 1 lb.; ginger root, 1 lb.; cayenne pepper, 2 ozs.; cloves, 2 ozs.; all finely pulverized and well mixed. **Dose**—One-half of a teaspoon of it and a spoon of sugar; put them into a teacup and pour it half full of boiling water; let it stand a few minutes and fill the cup with milk, and drink freely. If no milk is to be obtained, fill up the cup with hot water.

"This in the first stages and less violent attacks of disease, is a valuable medicine, and may be safely employed in all cases. It is good in relax, pain in the stomach and bowels, and to remove all obstructions caused by cold. A few doses, the patient being in bed with a steaming stone at the feet, or having soaked the feet 15 or 20 minutes in hot water, drinking freely of the tea at the same time, will cure a bad cold and often throw off disease in its first stages." I use it, taking or giving lobelia emetics as mentioned under the head of "Eclectic Emetics." I use it also as a:

2. **Dyspeptic Tea.**—Where an attack has been brought on by overindulgence at an extra rich meal, you will find immediate and generally perfect relief by having a cup of this tea made, and drinking about one-half of it 15 minutes before meals, and the balance just as you sit down to the meal, not taking any other fluid at all until after digestion is over, following up the same plan for a few days or weeks, as may be necessary. It stimulates the stomach to action, causing digestion and absorption, preventing also the accumulation of gas, which is the cause of eructations of wind from the stomach, commonly called belching, and gives tone to the whole system.

A cup of this tea taken when going out into extreme cold will be found a better warmer than the whisky or any other ardent spirit, which so many resort to upon such occasions; and, what is best of all, it will be found:

3. **A Perfect Cure for Drunkenness.**—Let those who are accustomed to the excessive use of ardent spirits, and who wish to stop the practice, I say, let such have a cup of this tea made as above directed, and drink a part of it immediately on rising in the morning, and the balance just before meal time, keeping entirely away from the places of temptation; they will find a warm, healthy glow spreading from the stomach over the entire system, with a desire for food instead of "rot-gut." Follow this up faithfully two or three times daily, or whenever the craving begins for the accustomed stimulus, for a few days or weeks, if necessary, and it will be found that the cayenne, which is the purest stimulant in the whole Materia Medica, with its assistant, the bayberry, which stimulate without an after prostration, have gradually supplied and satisfied the previous false appetite or cravings of the stomach; while the combination has toned up the stomach together with the whole system, and again you find yourself a man. But remember, oh, remember, your only safety is in keeping entirely away from places where intoxicating spirits are kept or sold!

A burned child will not play with fire. I would to God that a burned man was equally wise. For not one in a thousand can resist the solicitation of enemies (called friends) to take a glass, just one, and that one glass acts like fresh coals upon extinguished brands, and the fire goes ahead again with a hundredfold more energy than if thrown upon wood which had never been charred; hence the propriety of the sentence, "Plucked as a brand from the everlasting burnings"—for if rekindled there is but little prospect of another extinguishment of the raging fire. Dr. Thompson, notwithstanding all that has been said against him, has done more good than any other medical man that ever lived; for he set the people to studying for themselves.

STIMULANT.—In Low Fevers and After Uterine Hemorrhages—Mistula Spiritus vini Gallici.—Best brandy and cinnamon water, of each 4 fluid ozs.; the yolks of 2 eggs, well beaten; loaf sugar, ½ oz.; oil of cinnamon, 2 drops; mix. **Dose**—From ½ to 1 (fluid) oz., as often as required. This makes both eat and drink. Of course, any other flavoring oils can be used if preferred in place of the cinnamon.

This mixture is an imitation of the well-known compound termed "egg-flip." It is an exceedingly valuable stimulant and restorative, and is employed in the latter stages of low fevers, and in extreme exhaustion from uterine hemorrhages. It may be used in place of the "egg-nog" spoken of in the treatment of consumption, No. 6.

ALTERATIVES.—Syrup or Blood Purifier.—Honduras sarsaparilla, 12 ozs.; guaiacum shavings, 6 ozs.; winter green leaf, 4 ozs.; sassafras-root bark, 4 ozs.; elder flowers, 4 ozs.; yellow dock, 3 ozs.; burdock-root, 4 ozs.; dandelion-root, 6 ozs.; bittersweet-root, 2 ozs.; all bruised. Place these ingredients in a suitable vessel and add alcohol, 1 pt., with water sufficient to cover handsomely, set them in a moderately warm place for 3 or 4 days, pour off 1 pt. of the tincture and set it aside until you add water to the ingredients and boil to obtain the strength; pour off and add more water and boil again; then boil the two waters down to 1 qt.; strain, and add the liquor first poured off, and add 2½ lbs. crushed or coffee sugar, and simmer to form a syrup; when cool, bottle and seal up for use. **Dose**—One to 2 tablespoons, according to the age and strength of the patient, ½ hour before meals and at bedtime.

This or any other alterative, when given, should be followed up for weeks or months, according to the disease for which it is prescribed, as scrofula, and for every disease depending upon an impure condition of the blood. It ought to be used in sore eyes of long standing, old ulcers, salt-rheum, etc. I would not give this for Jayne's Alterative, nor Swain's, nor Townsend's, nor Ayer's Sarsaparillas, because I know it is good, and we also know what it is made of.

2. **Alterative, Very Strong.**—Poke, mandrake, yellow dock, sassafras, blue flag, roots and bark of the roots, guaiac wood raspings, and sweet elder flowers, of each 4 ozs.; caraway seed, 3 ozs.; bruise the roots and put to the whole alcohol, 1 qt., and water to cover all handsomely; let stand 3 or 4 days in a warm place as the last recipe above, making every way the same except to pour off 1 qt., instead of 1 pt., as in the first, of spirit; then boil the waters to 1 qt., adding 4 lbs. of sugar with the qt. of spirit tincture. The dose being only 1 tablespoon 4 times daily as above.

But if that amount should make the bowels too loose, reduce the quantity; and if that amount does not act upon the bowels at all, increase the dose to keep the bowels solvent. This may be used in the most inveterate diseases of long standing, syphilis not excepted.

3. **Alterative Cathartic—Powder.**—Rochelle salts, 5 ozs.;

cream of tartar, 2 ozs.; sulphur, 1 oz. (epsom salts may be used, but are not quite as good); place the salts in a dripping-pan and set in the stove oven until all the water of crystalization is dried out; then place all in a mortar and rub finely and thoroughly together. **Dose**—Mix up a few spoons of the powder with molasses; then take a teaspoon every 3 or 4 hours until a free cathartic action is kept up for 24 to 36 hours; then take once or twice daily only, to act on the blood, increasing once in 10 days, to get up the cathartic action, as at first.

This alterative is especially valuable in any disease of the skin, as itch, pimples, salt-rheum, and any other eruptions where an outward application is being made, or is about to be made; also valuable in sore eyes.

4. **Alterative, Tonic and Cathartic Bitters.**—Best rye whisky and water, of each 1 qt.; best unground Peruvian bark, colombo root and prickly-ash berries, of each 2 ozs.; prickly-ash, black cherry, and poplar barks, of each 1 oz.; poke-root, mandrake-root and cloves, of each ½ oz.; all to be the dry articles, and all to be pulverized before putting into the spirits; shake every day for a week, by which time it will be ready for use. **Dose**—One to 2 tablespoons at morning and evening meals.

Although this alterative is mentioned last in the list, yet it is not least in value. I first made this prescription for my own use, feeling that I needed something of just such a nature, and it worked so admirably that I gave it to others. It has given such entire satisfaction that I am now at the tenth edition, giving it a place to do a greater good than if kept from the world.

If, in any case, it causes any griping sensations, or too great action upon the bowels, lessen the dose, and if neither of these actions are felt, increase the dose or take it three times daily. I think any of the fruit wines will do in place of the spirits and water by adding alcohol, one-half pint.

It will be found very valuable in all cases of weakness from general debility, and especially so when the liver is inactive, known by constant costiveness.

After using out the spirits it may be filled again in the same way. It will be found very valuable in ague, and after all fevers, preventing relapse and strengthening up the general system.

DIURETICS.—Pill, Drops, Decoction, Etc.—Solidified copaiba, 2 parts; alcoholic extract of cubebs, 1 part; formed into pills with a little oil of juniper. **Dose**—One or 2 pills 3 or 4 times daily. Druggists can obtain them of Tilden & Co., New York.

This pill has been found very valuable to affections of the kidneys, bladder and urethra, as inflammation from gravel, gonorrhea, gleet, whites, lucorrhea, common inflammations, etc. For giving them a sugar coat, see that heading, if desired.

2. **Diuretic Drops.**—Oil of cubebs, ½ oz.; sweet spirits of nitre, ½ oz.; balsam of copaiba, 1 oz.; Harlem Oil, 1 bottle; oil of lavender, 20 drops; spirits of turpentine, 20 drops; mix. **Dose**—Ten to 25 drops, as the stomach will bear, 3 times daily.

It may be used in any of the above diseases with great satisfaction.

3. **Diuretic Decoction.**—Queen of the meadow, dwarf-elder, yellow dock and poke-roots, of each 1 oz.; dandelion, burdock, American Sarsaparilla and blue flag-roots, of each ½ oz.; grind or pound all up and thoroughly mix. **Dose**—Take up a pinch with the ends of the fingers and thumb of one hand, say ¼ to ½ oz., and pour upon it 1 pt. of boiling water, steeping awhile; when cool, take a swallow or two sufficiently often to use up the pt. in the course of the day.

Follow this plan 2 or 3 days, or as may be necessary, resuming the course once in 10 or 12 days. It may be used in all obstructions of the kidneys, where the urine is high-colored or scanty.

4. **Diuretic Tincture.**—Green or growing spearmint mashed, put into a bottle and covered with gin, is an excellent diuretic.

5. **Diuretic for Children.**—Spirits of nitre—a few drops in a little spearmint tea—is all sufficient. For very young children pumpkin seed or watermelon seed tea is perhaps the best.

DROPSY.—Syrup and Pills.—Queen of the meadow root, dwarf-elder flowers, berries or inner bark, juniper berries, horse-radish root, pod milkweed or silkweed, often called, root of each, 4 ozs.; prickly-ash bark or berries, mandrake root, bitter-sweet bark of the root, of each 2 ozs.; white mustard seed, 1 oz.; Holland gin, 1 pt.

Pour boiling water upon all except the gin, and keep hot for 12 hours; then boil and pour off twice, and boil down to three quarts and strain, adding three pounds of sugar, and lastly the gin. **Dose**—Take all the stomach will bear, 4 times daily, say a wine-glass or more. This will be used in connection with the following:

2. **Dropsy Pills.**—Jalap, 50 grs.; gamboge, 30 grs.; podophyllin, 20 grs.; elaterium, 12 grs.; aloes, 30 grs.; cayenne, 35 grs.; castile soap shaved, dried and pulverized, 20 grs.; croton oil, 90 drops; powder all finely and mix thoroughly; then form into pill mass by using a thick mucilage made of equal parts of gum arabic and tragacanth, and divide into 3 gr. pills. **Dose**—One pill every 2 days for the first week, then every 3 or 4 days until the water is evacuated by the combined aid of the pill with the above syrup.

In this disease the work must be very thorough, and I am inclined to think that if our directions are followed that whoever find themselves under the operations of the medicine will consider the work to be about as thorough as we expect. Some sickness of the stomach may be expected under the operation of the pill, but never mind it, go ahead, and four or five days will satisfy most persons of the value of the treatment; for you may expect to see the greatest evacuations, front and rear, that you ever have witnessed. If the patient should become weak and exhausted under the continued treatment, slack up a little and throw in beef tea, wine, etc., with rich nourishing diet, and no danger need be apprehended. The above pill will be found very valuable in bilious colic and other cases hard to operate upon. They have operated in fifteen minutes, but not usually so quick, of course; but it will generally be found best not to venture over one pill at a dose; two have been taken, however, but they made a scattering among the waste paper, causing fourteen evacuations, having a call for the second "chamber" the first fire. Some have called them the "Irish Pill," from their resemblance to the Irish girl with her brush and scrub-broom. They make clean work.

IRRITATING PLASTER.—Extensively Used by Eclectics.—Tar, 1 lb.; burgundy pitch, ½ oz.; white pine turpentine, 1 oz.; rosin, 2 ozs. Boil the tar, rosin and gum together a short time, remove from the fire and stir in finely pulverized mandrake-root, blood-root, poke-root, and Indian turnip, of each 1 oz.

This plaster is used extensively in all cases where counter irritation or revulsives are indicated; as in chronic affections of the liver and lungs, or diseased joints, etc. It is applied by spreading it on cloth and over the seat of pain, renewing it every day, wiping off any matter which may be on it, and also wiping the sore produced by it with a dry cloth until relief is obtained, or as long as the patient can bear it. Always avoid wetting the sore, as it will cause inflammation, and you will be obliged to heal it up immediately, instead of which the design is to keep a running sore as long as may be necessary, using at the same time constitutional remedies as the case may require.

INFLAMMATION—Of the Liver.—Inflammation of the liver, or, as it is generally called, "Liver Complaint," is of two forms, acute and chronic. The acute form is known by a sense of weight and pain in the right side under the short ribs, and often in that shoulder, or between the shoulders, pale or yellow appearance, often great depression of spirits, not much appetite, costiveness, high-colored urine, etc., and often with fever and sometimes with pain similar to that of pleurisy, difficult breathing, dry cough and sometimes sickness, with vomiting.

In the chronic or long standing complaint, in addition to the above there is generally flatulence, with pain in the stomach, foul breath and mouth, coated tongue, indigestion, eyes yellow, stools clay colored, with great weakness and slow emaciation, frequently going on to ulceration, giving symptoms as mentioned under the head of "Ointment for Ulcerated Liver," etc.

In the acute form you will pursue the same course as mentioned under the head of "Pleurisy," besides taking either of the Liver Pills or Liver Drops mentioned below, in full cathartic doses, until relieved; but in the chronic form, the Pills, in connection with the "Ointment," or "Irritating Plaster," will be found all sufficient, unless Jaundice has already set in; then look to the directions under that disease.

2. **Eclectic Liver Pill.**—Podophyllin, 10 grs.; leptandrin, 20 grs.; sanguinarin*, 10 grs.; extract of dandelion, 20 grs.; formed into 20 pills, by being moistened a little with some essential

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*NOTE.—These articles are kept by Eclectic Physicians, and are beginning to be kept by Druggists generally.

oil, as cinnamon or peppermint, etc. **Dose**—In chronic diseases of the liver take 1 pill at night for several days, or 2 may be taken at first to move the bowels; then 1 daily.

In connection with the pill wear the "Irritating Plaster" over the region of the liver, washing the whole body daily by means of towels and rubbing dry, being careful not to wet the sore caused by the plaster; as an active cathartic from two to three pills may be taken in all cases where calomel or blue pills are considered applicable by "Old School Physicians."

3. **Liver Pill Improved.**—Leptandrin, 40 grs.; podophyllin and cayenne, 30 grs. each; sanguinarin, iridin and ipecac, 15 grs. each; see that all are pulverized and well mixed; then form into pill mass by using ½ dr. of the soft extract of mandrake and a few drops of anise oil, then roll out into 3 grain pills.

Dose—Two pills taken at bedtime will generally operate by morning; but there are those that will require three, while one pill every night on retiring will be found the best corrective of the liver of anything now in use for common cases; but in very bad cases, where the pill does not arouse the liver to action, take the following:

4. **Liver Drops for Obstinate Cases.**—Tinctures of mandrake and blue flag roots, of each 1 oz.; and of culvers root, 2 ozs. **Dose**—For adults, 1 teaspoon every 3 to 5 hours, increasing the dose gradually until you reach two or three teaspoons, if the mouth does not become sore and the stomach not sickened nor the bowels moved too freely.

These drops are especially applicable in liver and spleen enlargements, and cases of very long standing diseases of these organs; and in such cases it may be well to use externally, over the liver and spleen, especially if there is believed to be ulceration, the following:

5. **Ointment for Ulcerated Liver, Ague Cake, Etc.**—Take a good handful of smartweed, wormwood and the bark of sumac root; boil all together to get the strength, then strain and boil down carefully to about ½ pt., adding lard, ¼ lb., and simmering together; when nearly cool add a teaspoon of spirits of turpentine.

Apply at night, by rubbing it over the liver or other organ which may have pain or disease located upon it, heating it in well by the stove or by a heated iron, putting it on, rubbing and heating it in three or four times each application.

I obtained this prescription from the Rev. Mr. Fraser, of this city, whose nephew was so afflicted with ulceration of the liver that a council of Doctors said he must die; the pain was situated just under the short ribs of the right side, completely bowing him together, like the one of old who could "in no wise lift up herself." He had had a sister who died some years before, but at this juncture of the case the invalid dreamed of meeting her, and she gave him this prescription, which he told his mother in the morning, and she would not rest until it was tried, and it entirely cured the patient. The Elder tells me he has given it to a great many persons, for pains of internal organs. ague cakes, etc., and that it has given great satisfaction

—a perfect cure. The two first named articles I know to be good for what they are here recommended, but they are generally used by boiling and laying the herbs over the affected parts or by steaming the parts over the herbs. I see no reason why spirits from the other world should not be permitted to communicate with the spirits of friends here; but that they are so permitted to communicate in such a way as to be understood by us frail mortals I never did, nor do I now, believe, neither do I believe this to be the first dream of this character which has proved valuable. There are many things of a similar character in the history of a number of individuals in the range of my acquaintance, more singular and more unaccountable than the above, which would be very interesting to relate, but the nature of this work does not admit. If this shall benefit any, I shall be satisfied.

PILLS.—Nervous Pill.—Alcoholic extract of the Ignatia Amara (St. Ignatius bean), 30 grs.; powdered gum arabic, 10 grs. Make into 40 pills.

Dose—One pill to be taken an hour after breakfast, and one an hour before retiring at night. Half a pill is enough for young or very old or very delicate persons. The pills may be easily cut if laid on a damp cloth for a few moments.

These pills will be found applicable in bad Dyspepsia, nervous headache, sleeplessness, palpitation of the heart, confusion of thought, determination of blood to the head, failure of memory and all other forms of general nervous debility, no matter of how long standing. Where a prominent advantage is discovered in two weeks from the commencement of the medicine, one a day will suffice until all are taken.

The extract is made by pulverizing the seed or bean and putting it into alcohol from 10 to 14 days, then evaporating to the consistence for working into pill mass with the powdered gum.

This is the prescription of the Rev. John M. Dagnal, the "Retired Physician," brought out in 1854, and to my attention, and that of the medical class, by Prof. Palmer, in the University of Michigan, in the winter of 1856-57. He said when this prescription first came out he was practicing in Chicago, and many persons sent for the pills, and derived much benefit from their use at first, but soon after they seemed to lose their efficacy, and he presumed the reason to be that the demand was so great that something else was substituted in place of the extract. This being the case, druggists ought to prepare the extract themselves, so as to furnish patients with the genuine article for home use. It is undoubtedly a splendid prescription if put up with fidelity.

2. **Pills—To Sugar Coat.**—Pills to be sugar-coated must be very dry, otherwise they will shrink away from the coating and leave it a shell, easily crushed off. When they are dry you will:

Take starch, gum arabic and white sugar, equal parts, rubbing them very fine in a marble mortar, and if damp they must be dried before rubbing together; then put the powder into a suitable pan, or box, for shaking; now put a few pills into a small tin box having a cover, and pour on to them just a little simple syrup, shaking well to moisten the surface only, then throw into the box of powder and keep in motion until completely coated, dry and smooth.

If you are not very careful you will get too much syrup upon the pills; if you do, put in more and be quick about it, to prevent moistening the pill too much, getting them into the powder as soon as possible.

3. **Anodyne Pills.**—Morphine, 9 grs.; extract of stramonium and hyosciamus, of each 18 grs.; form into pill-mass by using solution of gum arabic and tragacanth, quite thick. Divide into 40 pills. **Dose**—In case of severe pain or nervousness, 1 pill taken at bedtime will be found to give a quiet night of rest.

The advantage of this pill over those depending entirely upon opium or morphine for their anodyne properties is that they may be taken without fear of constipation.

CROUP.—Simple but Effective Remedy.—This disease is attended with inflammation of the windpipe, spasms of the muscles of the throat, occasioning a peculiar sound, hard to describe, but when once heard by a mother never to be forgotten; cough. difficult respiration and fever. The phlegm or mucous often filling, or very much obstructing the throat, and finally forming a false membrane which cuts off all possibility of breathing.

The first thing to be done is to get hot water ready as soon as possible, having always on hand a bottle of emetic tincture, composed of equal parts of the tinctures of lobelia and bloodroot. **Dose**—According to the age of the child; if 2 years old, about 1 teaspoon every 10 to 15 minutes until free vomiting takes place; if 5 years old, 2 teaspoons, and increasing in proportion to age to 1 tablespoon for a child of 10 years, decreasing for very young children, say of 4 to 8 months, only 8 to 12 drops. Place the feet as soon as possible into hot water and keep them there until vomiting takes place, laying cloths wrung out of hot water upon the breast and throat, changing sufficiently often to keep them hot. The next morning give sufficient of the "Vegetable Physic" to move the bowels rather freely. The emetic tincture should be given in some warm tea.

Repeat the emetic as often as the returning symptoms demand it, which usually occur the following night, repeating the cathartic every second or third day and I will guarantee success if commenced in any kind of reasonable time; but usually no repetition will be needed if parents keep the preparation in the house so as to begin with the beginning of the disease.

2. **Dutch Remedy.**—Goose oil and urine, equal quantities. **Dose**—From a tea to a tablespoon of the mixture, according to the age of the child. Repeat the dose every 15 minutes, if the first does not vomit in that time.

This remedy will be found valuable in mild cases, and where the first is not at hand; and I know it to have saved a child when one of their best Doctors said it must die; but bear in mind he had not used our first prescription; yet an old Dutch woman came in at the eleventh hour from the next-door neighbors' washtub and raised the child with what she called "p—s and goose grease." I have used it with success.

3. **Croup Ointment.**—Take mutton suet and nice lard, of each ½ lb.; spermaceti tallow, ½ oz.; melt them together and add ½ pt. of the vest vinegar, and simmer until the vinegar is nearly evaporated, skimming well and constantly stirring, until it begins to granulate; then add oils of amber and spruce, and pulverized sugar of lead, of each ½ oz.; now remove from the fire and stir it until cool. **Dose**—For a child of 2 years old give from ½ to 1 teaspoon every ½ hour, until relief is obtained, or until vomiting takes place; at the same time rubbing it upon the chest and over the throat and lungs freely.

Dr. ——, of Findlay, Ohio, says from his experience he knows it will cure as often as quinine will break up the ague.

HYDROPHOBIA AND SNAKE BITES.—To Prevent and Cure. —A. Hubbard, of Boone Co., Ill., in a letter to the St. Louis Republican, says: "Eighteen years ago my brother and myself were bitten by a mad dog. A sheep was also bitten at the same time. Among the many cures offered for the little boys (we were then 10 or 12 years old), a friend suggested the following, which he said would cure the bite of a rattlesnake:

"Take the root of the common upland ash, commonly called black ash, peel off the bark, boil it to a strong decoction, and of this drink freely. While my father was preparing the above the sheep spoken of began to be afflicted with hydrophobia. When it had become so fatigued from its distracted state as to be no longer able to stand, my father drenched it with a pint of the ash root ooze, hoping to ascertain whether he could depend upon it as a cure for his sons. Four hours after the drench had been given, to the astonishment of all, the animal got up and went quietly with the flock to graze. My brother and myself continued to take the medicine for 8 or 10 days, 1 gill 3 times daily. No effects of the dread poison were ever discovered on either of us. It has been used very successfully in snake bites to my knowledge."

There is no doubt in the author's mind but what this gentleman has made a mistake in the kind of ash meant, as the upland ash is white-ash, from which flooring is made, having a thick, rough outside bark, while the black has a smooth bark, and grows in low, wet land, and is the same from which the flour barrel hoop is extensively manufactured. It is the upland white ash that is to be used; it is known, as he says, to cure rattlesnake bites, and a gentleman of this place has tried it with success in rheumatism, boiled very strong and taken in half gill doses. May vomit and purge if taken too freely. Yet a moderate action, either up or down, will not be amiss. I have cured a case of rheumatism in a boy 12 or 14 years of age with the above since it came to my knowledge.

2. **Saxon Remedy.**—Gastell, a Saxon forester, now of the venerable age of 82, unwilling to take to the grave with him a secret of so much importance, has made public in the Leipsic Journal the means which he has used for 50 years, and where-

with he affirms he has rescued many human beings and cattle from the fearful death of Hydrophobia:

Take immediately after the bite warm vinegar or tepid water, wash the wound clean therewith and dry it; then pour upon the wound a few drops of hydrochloric acid, because mineral acids destroy the poison of the saliva.

3. **Grecian Remedy.**—Eat green shoots of asparagus raw; sleep and perspiration will be induced, and the disease can be thus cured in any stage of canine madness.

A writer in the Providence Journal says a man in Athens, Greece, was cured of Hydrophobia by this remedy even after the paroxyms had commenced.

4. **Quaker Remedy.—Fifty Years Successful.**—Jacob Ely, a good old honest Quaker merchant, of Lloydsville, Ohio, gave me the following plan which his father had used since 1806 with success, to his knowledge, both on persons and domestic animals; and the New York Tribune has recently published something of the same character.

The dried root of elecampane, pulverize it and measure out 9 heaping tablespoons, and mix it with 2 or 3 teaspoons of pulverized gum arabic; then divide into 9 equal portions. When a person is bitten by a rabid animal, take one of these portions and steep it in 1 pt. of new milk, until nearly half the quantity of milk is evaporated; then strain and drink it in the morning, fasting for 4 or 5 hours after. The same dose is to be repeated 3 mornings in succession, then skip 3, and so on until the 9 doses are taken.

The patient must avoid getting wet, or the heat of the sun, and abstain from highly seasoned diet, or hard exercise, and, if costive, take a dose of salts. The above quantity is for an adult—children will take less according to age. The Tribune's publication is as follows:

5. **Tribune's Cure for Hydrophobia.**—The following was sent to the New York Tribune by J. W. Woolston, of Philadelphia:

"**Recipe.**—First dose, 1 oz. of elecampane root, boiled in 1 pt. of milk until reduced to ½ pt. Second dose (to be taken two days after the first), 1½ ozs. of elecampane root, boiled in 1 pt. of milk, same as the first. Third dose, same as the second (to be taken two days after)—in all, three doses."

If there is any virtue in the elecampane at all the preference, of course, is to be given to the Quaker's plan, which gives nine instead of three doses. But it substantiates Mr. Ely's plan, as it comes from the place of his father's former residence. Consequently it would seem to strengthen confidence in the first.

6. **Snake Bites.**—In case of being bitten by any of the poisonous snakes, the best plan is to wash off the place immediately; then if the position of the wound is such that you can get the mouth to the spot, suck out all the poison in that way, or if any other person is present whose mouth is not sore, no danger need be apprehended.

For all the poison may be upon the outside and washed off, yet most likely penetrates more or less into the wound, if a snake bite, as the arrangement of their teeth is such that the poison comes out near the point and when in the wound, thus you see the propriety of sucking it out. Or:

7. Spirits of ammonia, a small vial of it, can be carried in the pocket, and if bitten, sharpen a little piece of wood to a small point, dipping this stick into the ammonia, and then penetrating the wound with it. A piece of lunar caustic can be carried in the pocket and sharpened, if needed, and used the same as the stick and ammonia—and one of the celebrated English farriers has reported that this caustic, used freely on the bite of the mad dog, destroys the poison; but to insure even a reasonable hope of success, it must be used immediately. This holds good in any of the sucking or caustic applications.

All persons working on or near marshes, or wherever the massasauger is known to inhabit, should always have one of these caustics with them.

8. But when a person is bitten in the absence of all these caustics, and not being able to reach the spot to suck out the poison, he must drink whisky enough to get as drunk as a fool, or his whole dependence must be upon the ash, asparagus, or elecampane.

The National Intelligencer a year or two since published a recipe for the cure of the rattlesnake bite, which it claimed was infallible, it having been tried in a number of cases and always with success. It was nothing more nor less than the use of whisky, as above recommended, and it is but justice to say that a daughter of William Reed, of the town of Pittsfield, in this county, who was bitten on the arm some three years ago, was cured by drinking whisky until drunkenness and stupor were produced, and she has never felt any inconvenience from the bite since, which goes to show that the bite of the Devil's tea is worse than the bite of a rattlesnake.

9. I know an old physician who was called to a boy bitten by a rattlesnake, and in the absence of all other remedies, he cured him upon the principle that "The hair of the dog will cure his bite," taking a piece of the snake about two inches long, splitting it on the back and binding it upon the bite. It cleansed the wound very white, and no bad effects were seen from it.

10. **Saleratus**, moistened and bound upon the bite; then dissolve more and keep the parts wet with it for a few hours, has cured many massasauger bites, as also bee stings.

11. **Snake Bitten Cattle.—Remedy.**—Cattle or horses are usually bitten in the feet. When this is the case all that is necessary to do is to drive them into a mud hole and keep them there for a few hours; if upon the nose, bind the mud upon the place in such a manner as not to interfere with their breathing. And I am perfectly satisfied that soft clay mud would be an excellent application to snake bites on persons, for I know it to draw out the poisoning from ivy, and have been assured that it has done the same for snake bites of persons as well as for cattle.

EYE PREPARATIONS.—Eye Water.—Table salt and white vitriol, of each, 1 tablespoon; heat in copper or earthen vessel until dry; the heating drives off the acrid or biting water called the water of crystalization, making them much milder in their action; now add them to soft water, ½ pt.; putting in white sugar, 1 tablespoon; blue vitriol, a piece the size of a common pea. If it should prove too strong in any case add a little more soft water to a vial of it. Apply it to the eyes 3 or 4 times daily.

If the eyes are very sore, or if the soreness has been of long standing, take the "Alterative Syrup," or the "Cathartic Alterative," continuing them for several weeks, according to the necessities of the case. I find it an excellent plan in using any preparation for sore or weak eyes to apply it again about twenty minutes from the first application. More than double speed is made by this repetition. For inflammation of any part of the body, apply this by wetting cloths. Even for sores about the ears and groins of babes, reduce it, and three or four applications will cure them. I have also found it valuable for horses as a wash, when they get the eye injured by straws or otherwise, which causes the eye to water or matterate, using it freely.

The use of this eye water enabled me to lay by the spectacles after four years' wearing, and I have since studied medicine and graduated as a physician, without resorting again to their use, by the occasional application of the eye water. But I need not have resorted to the use of the eye water again had I not done in study, as I do in all things else—that is, when I have anything to do I do it with all my might. I read steadily, day by day, sixteen hours—more than five other students read altogether, who roomed at the same house. Yet this counted in the end; for when the class began to inquire and look around near the end of the term for one to deliver the Valedictory, on their behalf, which is the custom in the Eclectic Medical Institute, I received that, the first honor of the class. I do not mention this to boast, by no means, but to show the necessity, as well as the advantages, of hard study, especially to those who begin their studies late in life, and are obliged to pay their way with their own hands and support a family also. This was my case exactly. In the commencement of my medical studies I worked all day, reading half of the night, copying all the latin terms, with their significations, on a slip of paper, which I carried in my pocket during the next day, looking at two or three of the terms at a time, through the day, until all were committed. And thus I accomplished no more than what any other man may do if he goes at it with a will and does as I did; and that some one may be stimulated to this course is the only object of this recital. See "Advice to Young Men."

2. Dr. Raymond, of Grass Lake, Mich., who obtained the above prescription of me, adds to each ounce of water used 1 grain of morphine, and he tells me he has great success with it; the addition of the morphine making it nearly resemble the celebrated prescription used by the English surgeons in India, which is as follows:

3. **India Prescription for Sore Eyes.**—Sulphate of zinc, 2

grs.; tincture of opium (laudanum), 1 dr.; rose water, 2 ozs.; mix. Put a drop or two in the eye 2 or 3 times daily.

4. **An Eye Doctor,** of Xenia, Ohio, makes a great use of the following:

Sulphate of zinc, acetate of lead, and rock salt, of each ½ oz.; loaf sugar, 1 oz.; soft water, 12 ozs.; mix without heat and use as other eye waters.

5. **Dr. Cook,** of Ashtabula, Ohio, makes and sells large quantities, under the head of "Cook's Eye Water." It is as follows:

Sulphate of zinc, 1 oz.; sugar of lead, ½ oz.; precipitated carbonate of iron, ½ oz.; salt and sugar, of each 1 tablespoon; the whites of 2 eggs; soft water, 32 ozs.; mix the whites of the eggs, zinc, salt, lead, sugar and iron well together, then add the water.

6. **For Excessive Inflammation of the Eyes.**—Poultice by boiling a handful of hops in water, putting in from ½ to 1 dr. of opium, while boiling; when still warm, lay the hops over the eyes and keep them wet with the water in which they were boiled.

A lady who had been blistered and starved, according to the old plan, in this disease, was soon cured by this poulticing and washing the eyes often with the hop-water containing the opium, with generous diet, etc., contrary to the expectation of friends and the predictions of enemies to the plan.

7. **If sore eyes** shed much water, put a little of the oxide of zinc into a vial of water and use it rather freely—it will soon cure that difficulty.

8. **Copperas** and water has cured sore eyes of long standing, and used quite strong it makes an excellent application in erysipelas.

9. **Garden Rhubarb.**—The juice of the root applied to the eye has cured bad cases.

10. **Boil** an egg, remove the yolk and have ready equal parts of sulphate of zinc and loaf sugar, pulverized; fill the place occupied by the yolk and squeeze out the oil through a linen cloth while hot and apply as needed. If too strong, add a little rain water.

I sold a book to a Mrs. Johnson, in Wayne Co., Mich., who had used this preparation very successfully for several years, and had I not have already had it in my book, I could not have purchased it of her for less than five dollars, and I regretted very much that I was taking from her a source of profit by selling the books in her neighborhood containing the recipe.

11. **Sailor's Eye Preparation.**—Burn alum, and mix it with the white of eggs and put between two cloths and lay it upon the eyes; taking salts and cream of tartar, equal parts, to cleanse the blood.

This was given to me and very highly recommended, by an old Scotch sailor with whom I have had much enjoyment, talking over the sufferings of the sea, he having used it many times in places where nothing else could be obtained.

12. **Father Pinkney's Preparation for Very Sore Eyes.**—Castile soap, scraped fine, and half the quantity of very finely

pulverized chalk; wet them up to a paste with strong juice of tobacco; when desired to apply to the eye, drop two or three drops of brandy into the box of paste; then take out a bit of it where the brandy was dropped, equal in size to the fourth of a grain of wheat, to the diseased eye; wet it on a bit of glass and put it into the eye with a camel's hair pencil.

Apply it twice daily at first, and from that to only once in two days, for from one to two weeks, will and has cured wretched bad cases, so says old Father Pinkney, of Wayne Co., Mich., who used it over 50 years, he being over 90 years of age. His only object in giving it an insertion here is to do good to his fellow creatures; and also for animals, it being equally applicable to horses or cattle.

13. **Indian Eye Water.**—Soft water, 1 pt.; gum arabic, 1 oz.; white vitriol, 1 oz.; fine salt, ½ teaspoon; put all into a bottle and shake until dissolved. Put into the eye just as you retire to bed.

I paid Mrs. Pinny, south of Ypsilanti, Mich., 50 cents for this prescription. She would not, however, let her own family know its composition. Her husband had removed films from horses' eyes with it, and cured Mr. Chidister, a merchant of Ypsilanti, by only two applications, as the saying is, after he had "Tried everything else." It came from an old Indian, but my knowledge of the articles would lead me to say for common at least it would require to be reduced one-half.

14. **Tobacco Eye Water.**—Fine cut tobacco the size of a common hickory nut; sugar of lead equal in bulk; rain water, 2 ozs.; opium the size of a pea. Reduce it with more water if necessary.

15. **Verdigris and Honey** have cured inflamed eyes by using just sufficient verdigris to color the water a grass color, then making it one-third honey. It is also said to prevent scars by using upon burns.

16. **Raw Potato Poultice,** for inflamed eyes is one of the very best applications in recent cases, scraping fine and applying frequently.

17. **Slippery-Elm Poultices** are also an excellent application, used as above.

18. **Films—To Remove from the Eye.**—Wintergreen leaf, bruised and stewed in a suitable quantity of hens' oil to make the oil strong of the wintergreen; strain and apply twice daily.

The above cured a boy of this city, and I am satisfied that the hens' oil has cured recent cases without the wintergreen, but with it, it has cured beasts also. For cases of a year or two's standing, however, it is best to use the following:

19. **Lime** water, 1 pt.; finely pulverized verdigris, ½ oz.; set on embers for 1 hour; then strain and bottle tight. Touch the film over the pupil or on the speck 2 or 3 times daily by putting the point of a small camel's hair pencil into the preparation, then to he eye, holding away the lids for a short time by placing the thumb and finger upon them for that purpose.

It will be found necessary to persevere for two or three months with this application, and also to use one of the "Alteratives" to cleanse the blood. This course, pursued for three months, gave sight to a young lady who had not seen light for two years, which Dostors could not do, nor were willing for others to do.

20. **Eye Salve.**—Take white precipitate, 1 teaspoon, and rub it into a salve with 3 teaspoons of fresh lard, and applied upon the outside of the lid of the worst chronic (long continued) sore eyes; has cured them when they were so bad that even the eyelashes (cilia) had fallen out from the disease.

A Physician was cured with this eye salve when he could not cure himself. If red precipitate will cure the itch, why should not the white cure diseases of the eye?

21. **Sore Eyes—To Remove the Granulations.**—Crystalized nitrate of silver, 2 grs.; morphia, 1 gr.; blue vitriol, 1 gr.; salammoniac, 1 gr.; pulverize each one separately and mix. Apply once daily by putting a small bit of the mixture upon a piece of glass, moistening it with a little water and putting into the eye by means of a small camel's hair pencil.

22. **Another Method**—Is to take a stick of tag-alder, about 3 feet long, boring a hole nearly through the middle of the stick, crosswise, filling it with salt, and plugging it up; then put one end into the fire and char it nearly to the salt, then the other end the same way, and finally pulverizing and applying the salt, the same as the above, once daily only.

In either case after the granulations (little lumps) are removed from the eye or eyes, finish the cure by using any of the foregoing eye waters which you may choose; all the time using some of the alteratives for cleansing the blood.

FEVER SORES—PLASTER, SALVE, ETC.—Black Salve.—Sweet oil, linseed oil and red lead, pulverized, of each 1 oz. (or in these proportions). Put all into an iron dish over a moderate fire, stirring constantly until you can draw your finger over a drop of it on a board when a little cool, without sticking. Spread on cloth and apply as other salves.

My brother, J. M. Chase, of Caneadea, N. Y., says he has used this salve about 15 years, and knows it to be one of the best in the world for all kinds of old sores, as ulcers, fever sores and all inflamed parts, cleansing and taking out redness or inflammation, causing a white healthy appearance in a short time, and a certain preventive of mortification, etc., etc., as well as to prevent soreness in more recent cuts and bruises also; and from my own knowledge of a salve which is very similar I have introduced it into this work, feeling assured that whoever may have occasion to try it will not regret the space it occupies, especially after reading the following: "A gentleman said to me during the past summer, "I will give you one of the most valuable salves in the world, for I cured a man's hand with it which was so swollen that it looked more like a ham than a hand; and two Doctors said it must be cut off, also ulcerated." When he told me how it was made I opened my book to the above salve, which was precisely the same as the one he used.

2. **Red Salve.**—Some prefer to prepare the salve as follows:

Red lead, 1 lb.; beeswax and rosin, of each 2 ozs.; linseed and sweet oils, of each 3 tablespoons; spirits of turpentine, 1 teaspoon; melt all, except the first and last, together; then pour in the lead and stir until cool, adding the turpentine.

Used upon fever and all other sores of an inflammatory character, at the same time taking the following pill to purify the blood:

3. **Mandrake** root, dried and pulverized, ½ oz.; blood root, in the same way, ¼ oz.; form into pills with extract of dandelion. **Dose**—Three pills may be taken at bedtime for 2 or 3 days, then add another pill, and at the end of a week take any cathartic you choose; then take iodide of potash, 10 grs., and put it into a vial with 1 oz. of water, and take 20 to 30 drops of it in a little more water, instead of the mandrake pill, for 3 or 4 days; then that pill again, as at first.

By the time you have gone around three or four times the blood will be pretty thoroughly cleansed—do not be afraid of the mandrake pill, as it will not act as a cathartic, but simply work upon the blood—if it does, reduce the number. You will be pleased with this method of purification.

4. **Indian Cure.**—G. A. Patterson, of Ashtabula, Ohio, was cured by an Indian physician in Cleveland of one of the worst fever sores almost ever known. The muscles of his leg were so contracted that no use could be made of his leg in getting about. Four months and the following treatment did the work:

A syrup of Wahoo (Euonymus Atropurpureus)—and here let me say that the Wahoo is the great Indian remedy for purifying the blood—was made by boiling very strong, then molasses and rum added to make it palatable and keep it from souring; this was used sufficient to keep the bowels solvent, sometimes chewing the bark of the root from which the syrup is made, preferring it a part of the time to the syrup. The sore was dressed with the following salve: Rosin, 1 lb.; mutton tallow, 1 lb.; beeswax, 1 lb.; linseed oil, 1 pt.; ambrosial (highly flavored) soap, 1½ ozs.; to make it, mix in an iron kettle and simmer 2 hours, stirring all the time. Spread on cloth and apply as needed. The contracted muscles were anointed with skunk's oil only.

Mr. Patterson also extols it very highly for all common purposes. And as I have a few other recipes for fever sores which have been so highly recommended by those who have used them, I cannot omit their insertion, and I would especially recommend the next one following, called:

5. **Kitridge's Salve.**—Bitter-sweet and sweet elder roots, of each 1½ lbs.; hop vines and leaves, and garden plantain, top and root, of each ½ lb.; tobacco, 1 3-cent plug. Boil all in rain water to get out the strength; then put the herbs in a thick cloth and press out the juice, and boil down carefully to ½ pt.; then add unsalted butter, 1 lb.; beeswax and rosin, of each, 1 oz., and simmer over a slow fire until the water is all out.

I obtained the above from S. B. Newton, a farmer Doctor near Mooreville, Mich., who had cured fever sores, with it, of thirty-five years standing; used it also on swellings in every case, once upon a boy who had an eye kicked out and swelled very bad; he keeps it in his stable all the time for wounds of horses and cattle, in castration, etc., etc. I know it must be a very valuable salve.

6. **Fever Sore Poultice.**—Sassafras, bark of the root, dried and pulverized very fine; make a bread and milk poultice quite thin, and stir in of the above powder to make it of proper consistence, applying 3 times in the 24 hours for 3 weeks; then heal with a salve made by thickening honey to a salve with wheat flour.

If there are loose bones it will be quite sore where they are working out, but persevere. A case was cured by it of 12 years' standing; the same man cured eight other cases, never having a failure, and it has proved successful on an abscess of the loins also.

7. **Yeast Poultice.**—Fresh yeast, the thick part, thickened with flour and applied to fever sores has proved very valuable, continuing it for several weeks, touching any points, which does not heal readily, with finely pulverized verdigris rubbed up with a little lard; then putting the poultice directly over the whole again.

This heals, leaving the parts white and natural, instead of dark, as I have seen many cases which had been cured.

8. **Salve for Fever Sores, Abscesses, Broken Breasts, Etc.**—Thoroughly steep tobacco, ½ oz., in soft water, 1 pt., straining out from the tobacco and boiling down to 1 gill; then have melted lard, rosin and beeswax, of each ½ oz., simmering to a thick salve, then stirring in 1 gill of old rum, and, if necessary, continuing the simmering a little longer. To be used as other salves.

9. **Ointment.**—Sweet clover (grown in gardens) stewed in lard; then add beeswax and white pine turpentine, equal parts, to form an ointment, is highly recommended.

10. **Salve for Fever Sores, Cuts, Etc.**—Spirits of turpentine and honey, of each ½ pt., simmered over a slow fire until they unite by stirring; then set aside to cool until you can put in the yolk of an egg without its being cooked by the heat; stir it in and return it to the fire, adding camphor gum, ¼ oz., simmer and stir until well mixed.

By putting in the egg when cool, it combines with the other, but if put in while the salve is hot it cooks, but does not combine. This is very highly recommended, as above indicated.

11. **William Howell**, a farmer living about six miles from Jackson, Mich., says he had a fever sore on his shin for 20 years, sometimes laying him up for months, and at one time preparations were made to cut off the limb, but an old man in New Jersey told him to:

Scrape a fresh turnip and apply it every 4 hours, night and day, until healed, which cured him.

And he feels assured from using it in other cases that all will be pleased with it who have any occasion for its use. Apply it oftener if it becomes too offensive.

SALVES.—Green Mountain Salve.—Rosin, 5 lbs.; burgundy pitch, beeswax and mutton tallow, of each ¼ lb.; oil of hemlock, balsam of fir, oil of origanum, oil of red cedar and Venice turpentine, of each 1 oz.; oil of wormwood, ½ oz.; verdigris, very finely pulverized, 1 oz.; melt the first articles together and add the oils, having rubbed the verdigris up with a little of the oils, and put it in with the other articles, stirring well; then pour into cold water and work as wax until cool enough to roll.

This salve has no equal for rheumatic pains, or weakness in the side, back, shoulders or any place where pain may locate itself. Where the skin is broken, as in ulcers and bruises, I use it without the verdigris, making a white salve, even superior to "Peleg White's old salve." It is valuable in Dyspepsia, to put a plaster of the green salve over the stomach and wear it as long as it will stay on; upon the back also, or any place where pain or weakness may locate. In cuts, bruises, abrasions, etc., spread the white salve upon cloth and apply it as a sticking plaster until well; for rheumatism or weakness, spread the green salve upon soft leather and apply, letting it remain on as long as it will stay. For corns, spread the green salve upon cloth and put upon the corn, letting it remain until cured. It has cured them.

A gentleman near Lancaster, Ohio, obtained one of my books having this recipe in it, and one year afterward he told me he had sold over 4,000 rolls of the salve, curing an old lady of rheumatism in six weeks who had been confined to her bed for seven weeks, covering all the large joints with the salve, without other treatment. For rolling out salves, see the cut below.

2. **Conklin's Celebrated Salve.**—Rosin, 4 lbs.; beeswax, burgundy pitch, white pine turpentine and mutton tallow, each ¼ lb.; camphor gum and balsam of fir, of each ¼ oz.; sweet oil, ½ oz., and alcohol ½ pt. Melt, mix, roll out and use as other salves. Wonders have been done with it.

3. **Balm of Gilead Salve.**—Mutton tallow, ½ lb.; balm of gilead buds, 2 ozs.; white pine gum, 1 oz.; red precipitate, ½ oz.; hard soap, ½ oz.; white sugar, 1 tablespoon. Stew the buds in the tallow until the strength is obtained, and press out or strain, scrape the soap and add it with the other articles to the tallow, using sufficient unsalted butter or sweet oil to bring it to a proper consistence to spread easily upon cloth. When nearly cool stir in the red precipitate, mixing thoroughly.

This may be more appropriately called an ointment. It is used for cuts, scalds, bruises, etc., and for burns by spreading very thin—if sores get proud flesh in them, sprinkle a little burned alum on the salve before applying it. It has been in use in this county about forty years, with the greatest success.

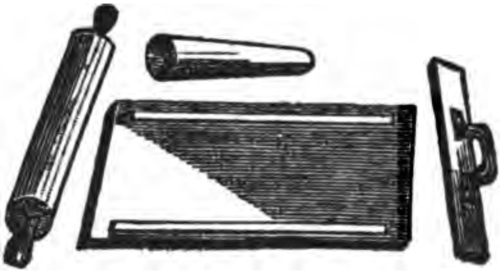
4. **Adhesive Plaster, or Salve, for Deep Wounds, Cuts, etc., in Place of Stitches.**—White rosin, 7 ozs.; beeswax and mutton tallow, of each, ½ oz.; melt all together, then pour into cold water and work as wax until thoroughly mixed, then roll out into suitable sticks for use.

It may be spread upon firm cloth and cut into narrow strips. In case of deep wounds or cuts it will be found to firmly hold them together by first pressing one end of a strip upon one side of the wound until it adheres, then draw the edges of the wound closely together and press down the other end of the strip until it adheres also. The strips should reach three or four inches upon each side of the cut and run in different directions across each other, to draw every part of the wound firmly in contact. It will crack easily after being spread until applied to the warm flesh, yet if made any softer it cannot be depended upon for any length of time, but as it is it has been worn as a strengthening plaster and remained on over a year.

5. **Peleg White's Old Salve.**—This formerly celebrated salve was composed of only three very simple articles. Our "Green Mountain Salve" is far ahead of it, yet for the satisfaction of its old friends I give you its composition:

Rosin, 3 lbs.; mutton tallow and beeswax, of each ¼ lb.; melted together and poured into cold water, then pulled and worked as shoemaker's wax.

It was recommended for old sores, cuts, bruises, rheumatic plasters, etc., etc.



Apparatus for Making Salves and Lozenges.

The above cut represents a board prepared with strips upon it of the desired thickness for the diameter of the rolls of salve, also a piece of board with a handle, with which to roll the salve when properly cooled for that purpose. The salve is laid between the strips, which are generally 1-inch thick, then, with the handle piece, roll it until that board comes down upon the strips, which makes the rolls all of one size; use a little tallow to prevent sticking to the board or hands; then cut off the desired length and put a label upon them, to prevent them sticking to each other.

A roller and tin-cutter is also represented in the same cut, with which, and another board having thin strips upon it to correspond with the thickness of lozenges required, you can roll the mass down until the roller touches the strips; and thus you can get them as well as the salve of uniform thickness; then cut out with the cutter, laying them upon paper until dry.

VERMIFUGES.—**Santonin Lozenges.**—Santonin, 60 grs.; pulverized sugar, 5 ozs.; mucilage of gum tragacanth sufficient to make into a thick paste, worked carefully together, that the santonin shall be evenly mixed throughout the whole mass;

then, if not in too great a hurry, cover up the mortar in which you have rubbed them, and let stand from 12 to 24 hours to temper; at which time they will roll out better than if done immediately; divide into 120 lozenges. See apparatus above for rolling and cutting out. **Dose**—For a child 1 year old, 1 lozenge, night and morning; of 2 years, 2 lozenges; of 4 years, 3; of 8 years, 4; of 10 years or more, 5 to 7 lozenges; in all cases to be taken twice daily and continuing until the worms start on a voyage of discovery.

A gentleman came into the drug store one morning with the remark, "Do you know what your lozenges have been doing?" as though they had killed some one. The answer was "No; is there anything wrong?" He held up both hands together, scoop shovel style, saying, "They fetched away the worms by the double handful." It is needless to attempt to give the symptoms by which the presence of worms might be distinguished; for the symptoms of nearly every other disease are sometimes manifested by their presence. But if the belly be quite hard and unusually large, with a peculiar and disagreeable breath, in the morning, foul or furred tongue, upper lip swollen, itching of the nose and anus, milky white urine, bowels sometimes obstinately costive, then as obstinately loose, with a craving appetite, then loathing food at times; rest assured that worm medicine will not be amiss, whether the person be child, or adult. It would be well to take a mild cathartic after four to six days' use of the lozenges, unless the worms have passed off sufficiently free before that time, to show their general destruction. Very high praise has also been given to the following:

2. **Vermifuge Oil—Prof. Freeman's.**—In the May number of the Eclectic Medical Journal of Cincinnati, O., I find so valuable a vermifuge from Prof. Z. Freeman, that I must be excused for its insertion, as the articles can always be obtained, whilst in some places you might not be able to get the santonin called for in the lozenges. His remarks following the recipe will make all needed explanations, and give confidence in the treatment.

The explanations in brackets are my own, according to the custom through the whole work.

"Take oil of chenopodii, ½ oz. (oil of worm-seed); oil of terebinth, 2 drs. (oil of turpentine); oil of ricini, 1½ ozs. (castor oil); fluid extract of spigelia, ½ oz. (pink) hydrastin, 10 grs.; syrup of menth. pip. ½ oz. (syrup of peppermint). **Dose**—To a child 10 years of age, a tea-spoon 3 times a day, 1 hour before each meal; if it purges too freely, give it less often.

"This is an excellent vermifuge, tonic, and cathartic, and has never failed (as well as I can judge) to eradicate worms, if any were present, when administered for that purpose. I have given no other vermifuge for the last five years, and often one tea-spoon has brought away from three to twenty of the lumbrica. Only a few days ago I prescribed one fluid drachm of it, (about one tea-spoon,) and caused the expulsion of sixty lumbricoids, and one fluid drachm, taken a few days afterwards, by the same child, brought away forty more, some of them six inches in length. Where no worms are present, it answers the purpose of a tonic, correcting the condition of the mucous membrane of the stomach and bowels, improving the appetite and digestion, and operating as a mild cathartic."

3. **Worm Tea.**—Carolina pink-root, senna leaf, manna, and American worm-seed, of each ½ oz.; bruise and pour on boiling water, 1 pt., and steep without boiling. Sweeten well, add half as much milk. **Dose**—A child of five years, may take 1 gill 3 times daily, before meals, or sufficient to move the bowels rather freely.

If this does not carry off any worms, wait one day and repeat the operation; but if the bowels do not move by the first day's work, increase the dose and continue to give it until that end is attained before stopping the medicine. This plan will be found an improvement upon the old, where the lozenges or oil cannot be obtained, as above.

4. **Worm Cake—English Remedy.**—Wheat flour and jalap, of each, ½ lb.; calomel, grain-tin, and ginger, of each, 1 oz. Mix thoroughly and wet up as dough, to a proper consistence to roll out; then roll out as lozenge cakes, to three-sixteenths of an inch in thickness; then cut out ¾ inch square and dry them. **Dose**—For the child from 1 to 2 years, ¾ of a cake; 4 to 5 years, 1 cake; from 5 to 7 years, 1¼ cakes; from 7 to 10 years, 1½; from 10 to 12, 1¾; from 12 to 14, 2; from 14 to 17, 2¼; from 17 to 20 years, and all above that age, 2½ cakes, but all men above that age, 3 cakes.

"Children may eat them, or they can be shaved off very fine and mixed in a little treacle, honey, or preserves. If after taking the first dose, they do not work as you desire, increase the dose a little. The patient to take the medicine twice a week—Sundays and Wednesdays. To be taken in the morning, fasting, and to be worked off with a little warm tea, water gruel, or warm broth. **N. B.**—Milk must not be used in working them off, and be careful of catching cold.—Snodin, Printer, Oakham, Eng."

I obtained the above of an English family who praised it very highly as a cathartic for common purposes, as well as for worms. And all who are willing to take calomel, I have no doubt will be pleased with its operations.

TAPE-WORM.—Simple, but Effectual Remedy.—This, very annoying and distressing, worm has been removed by taking two ounce doses of common pumpkin seeds, pulverized, and repeated every four or five hours, for four or five days; spirits of turpentine, also in doses of one-half to two ounces, with castor oil, have proved very effectual; the root of the male fern, valerian, bark of the pomegranate root, &c., have been used with success. But my chief object in speaking upon this subject is to give the successes of Drs. Beach, of New York, and Dowler, of Beardstown, Ill., from their singularity and perfect eradication of the worm, in both cases: The first is from "Beach's American Practice, and Family Physician," a large work, of three volumes, costing Twenty Dollars, consequently not generally circulated; whilst the latter is taken from the "Eclectic Medical and College Journal," of Cincinnati, and therefore only taken by physicians of that school. The last was first published by the "New Orleans Medical and Surgical Journal." First, then, Dr. Beach says:

"The symptoms of a tape-worm, as related to me by Miss Dumouline, who had suffered with it for twenty-five years, are in substance as follows: It commenced at the age of ten, and afflicted her to the age of thirty-five. The worm often made her distressingly sick at the stomach; she would sometimes vomit blood and be taken suddenly ill, and occasionally while walking. It caused symptoms of many other diseases, great wasting of the flesh, &c. Her appetite was very capricious, being at times good, and then poor for months, during which time her symptoms were much aggravated; sickness, vomiting, great pain in the chest, stomach and side, motion in the stomach, and also in the bowels, with pain, a sense of fullness or swelling, and beating or throbbing in the same, dizziness, heaviness of the eyes:—and she was altogether so miserable that she feared it would destroy her. When she laced or wore anything tight, it produced great distress. The worm appeared to rise up in her throat and sicken her. Her general health was very bad. At intervals, generally some time after taking medicine, pieces of the worm would pass from the bowels—often as many as forty during the day, all alive, and would swim in water.

"**Treatment.**—Miss Dumouline stated that she had employed twenty physicians, at different periods, and taken a hundred different kinds of medicine without expelling the worm. She had taken spirits of turpentine, but could not retain it upon the stomach. Under these circumstances I commenced my treatment. Cowage stripped from the pod, a small tea-spoon three times a day, to be taken, fasting, in a little arrow-root jelly; then occasionally a purgative of mandrake. In connection with this, I directed her to eat freely of garlic, and common fine salt. I gave these under the belief that each article possessed vermifuge properties, without ever having administered them for the tape-worm. After having taken them for some time, all her unfavorable symptoms ceased, and subsequently the remaining portion of the worm passed lifeless from her—an unprecedented circumstance.

"She immediately recovered, and has since retained her health, and there is no evidence that there is any remaining. The patient stated that the worms which passed from her during the time she was afflicted with it, would fill a peck measure and reach one mile in length. Her belief and gratitude may be better imagined than described. I have a portion of this worm in my possession. When once the tape-worm begins to pass the bowels, care must be taken not to break it off, for it will then grow again—it has this peculiar property."

2. Secondly, Dr. Dowler says: "The subject of this notice is a daughter of Mr. E. Fish, of Beardstown, Ill., about six years old. The only point of special interest in the case consists in the efficiency of the remedy—to me wholly new, and accidentally brought to my notice—which was used in its treatment.

"I was treating a brother of this patient: a part of my prescription for whom was, as a drink, the mucilage of elm bark, made by putting pieces of the solid bark into water. The girl was seen to be frequently eating portions of the bark during the day; the next morning after which, upon my visiting the boy, the mother, with much anxiety, showed me a vessel containing something that had that morning passed the girl's bowels, with bits of the elm bark, enveloped in mucilage, which, upon examination, proved to be about three feet of tape-worm. As I supposed the passage of the worm was accidental, and had occurred from the looseness caused by the bark, I proceeded to prescribe what I supposed a much more potent anthelmintic, a large dose of turpentine and castor oil. The turpentine and oil were given several times during the three consecutive days, causing pretty active purging, but with no appearance of any portion of the worm. The girl being slender, and of irritable temperament, I was forced to desist from further active medications; and partly to allay irritation of the bowels, and partly to test the influence of the bark on the worm, I directed that she should resume the use of the bark as before, by chewing and swallowing in moderate quantities.

"On visiting her the succeeding morning, I was shown portions of the worm, mostly in separate joints, that had been passed over night. Feeling now some confidence in the anthelmintic powers of the elm bark, I directed the continued use of it, in the solid form, as before, while there should be any portions of worm passing. In my daily calls for some days, I had the satisfaction to learn that portions of the worm continued to pass, from day to day, and sometimes several times a day.

"I now ceased to visit my little patient, intending only an occasional visit; but my confidence in the efficacy of the elm bark being so well established, I advised its use to be continued for even two or three days after any portions of the worm should be seen in the evacuations. The portions of the worm expelled—even the separate joints—were alive showing more or less motion; a sense of their presence in the rectum, from their action, seemed to urge the patient to go to stool for their removal.

"Having given directions for the links or joints to be counted, care was taken to do so, by the mother; and from my notes of the case, I find that during about seven weeks of the intervening time, there had been expelled, by estimate, (taking the average lengths of the joints,) about forty-five feet of worm. At this time there had been no portions of the worm passed for two weeks, during which time the use of the bark had been omitted. The head of the worm, with about fifteen inches of the body attached, had been expelled! But thinking that all portions of the worm or worms might not have been removed, I advised that the patient should resume the use of the bark. Very soon the next day, after doing so, further portions commenced coming away, among them one about six feet long, tapering to a thread-like termination.

"The next time I took notes of the case, my estimate of the entire length of the worm that had been expelled, footed up one hundred and thirty-five feet, whether one or more worms, I am unable to say, as in the portions I saw, there was a head and tail, of what I supposed one worm. Since the last estimate, there have been joints occasionally evacuated.

"This patient, when first treated, was thin in flesh—had been growing so for some two years—attended with the usual nervous symptoms, starting out of sleep, variable appetite, etc., but with no great departure from good health.

"As to the influence of this very bland agent in the dislodgment of the tape-worm, in this case, I think there can be no doubt, whatever may be the theory of its action.

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"The passage of portions of the worm, so promptly, on the use of the bark, and the ceasing to do so on the discontinuance of its use—even while active purgative anthelmintics were used —leave no room to doubt its effectiveness in at least this case, as a worm-expelling agent.

"It seems probable that the bark, with its thick mucilage, so interposes between the animal and the inner surface of the bowels, as to prevent its lateral grasp on their surface, in consequence of which it is compelled to yield to the forces naturally operating, and is carried out with the discharges. But as my object was simply to state the practical facts in this case, I will offer no further reflections.

COUGHS.—Cough Lozenges.—Powdered epecacuanha, 25 grs.; kermes mineral, 50 grs.;.sulphate of morphia, 8 grs.; powdered white sugar, gum arabic, and extract of licorice, of each, 1½ ozs.; oil of anise 20 drops; syrup of tolu sufficient to work into mass form; roll out and cut into 160 lozenges. **Dose**—One lozenge 3 times daily.—Parish's Pharmacy.

The above is the prescription of the "regulars," but there are those, perhaps, who would prefer the more rational prescription of the "irregulars," next following; and there are those who would prefer the "Cough Candy" in place of either of the lozenges. By the insertion of the variety, all can please themselves.

2. **Cough Lozenges.**—Another valuable lozenge is made as follows: Extract of blood-root, licorice, and black cohosh, of each, ¼ oz.; tinctures of ipecac and lobelia, with laudanum, of each, ¼ oz.; cayenne, powdered, 10 grs.; pulverized gum arabic and starch, of each, ¾ oz.; mix all together, and add pulverized sugar, 3 ozs. If this should be too dry to roll into lozenges, add a thick solution of gum arabic to give it that consistence; and if it should be yet too moist, at any time, add more sugar. Divide into 320 lozenges. **Dose**—One, 3 to 6 times daily, as needed.

3. **Pulmonic Wafers.**—Pulverized sugar, 7 ozs.; tincture of ipecac, 3 drs.; tincture of blood-root and syrup of tolu, of each, 2 drs.; tincture of thoroughwort, ½ oz.; morphine, 1¼ grs. Dissolve the morphine in water, ¼ tea-spoon, having put in sulphuric acid, 2 drops; now mix all, and add mucilage of comfrey root or gum arabic, to form a suitable paste to roll and cut into common-sized wafers or lozenges. **Directions**—Allow 1 to dissolve in the mouth for a dose, or dissolve 6 in 3 table-spoons

of warm water, and take ½ of a spoon 6 times daily, or oftener if need be.

4. **Coughs from Recent Colds—Remedy.**—Linseed oil, honey, and Jamaica rum, equal parts of each; to be shaken when used.

This has given very general satisfaction in recent coughs, but the following will probably give the most general satisfaction:

5. **Cough Mixture for Recent Colds.**—Tincture of blood-root, syrups of ipecac and squills, tincture of balsam of tolu, and paregoric, equal parts of each. **Dose**—Half of a teaspoon whenever the cough is severe. It is a very valuable medicine.

6. **Cough Candy.**—Tincture of squills, 2 ozs.; camphorated tincture of opium, and tincture of tolu, of each, ¼ oz.; wine of ipecac, ½ oz.; oils of gaultheria, 4 drops; sassafras, 3 drops, and of anise-seed oil, 2 drops. The above mixture is to be put into 5 lbs. of candy which is just ready to take from the fire, continuing the boiling a little longer, so as to form into sticks.—Parish's Pharmacy.

Druggists will get confectioners to make this for a trifle on the pound over common candies, they, of course, furnishing their own compound.

7. **Cough Syrup.**—Wahoo, bark of the root, and elecampane root, of each, 2 ozs.; spikenarh root and tamarack bark (unrossed but the moss may be brushed off), of each 4 ozs; mandrake root, ½ oz.; blood-root, ¼ oz.; mix alcohol, 1 pt., with sufficient water to cover all, handsomely, and let stand 2 or 3 days, then pour off 1 qt., putting on water and boiling twice, straining the two waters and boiling down to 3 pts.; when cool add 3 lbs. of honey, and alcoholic fluid poured off with tincture of wine of ipecac, 1½ ozs.; if the cough should be very light, double the ipecac; and wash the feet daily in warm water, rubbing them thoroughly with a coarse towel, and, twice a week, extending the washing and rubbing to the whole body. **Dose**—One tablespoon 3 to 5 times daily.

If the cough is very troublesome when you lie down at night or on waking in the morning, put tar and spirits of nitre, of each one tea-spoon, into a four ounce vial of water, shaking well; then at these times just sip about a tea-spoon from the bottle without shaking, which will allay the tickling sensation causing the cough.

I have cured a young lady, during the past winter, with the above syrup, whose cough had been pretty constant for over two years; her friends hardly expected it ever to be any better, but it was only necessary to make the above amount of syrup twice to perform the cure.

8. **Cough Tincture.**—Tinctures of blood-root and balsam of tolu, of each four ounces; tinctures of lobelia and digitalis, of each, two ounces; tincture of opium (laudanum) one ounce; tincture of oil of anise (oil of anise one-half tea-spoon in an ounce of alcohol), one ounce. Mix. **Dose**—About one-half teaspoon three times daily, in the same amount of honey, increasing to a tea-spoon if needed to loosen and lessen the cough. It has raised cases which doctors said must die, causing the patient to

raise matter resembling the death-smell, awful indeed. It will cure cough, not stopping it, but by loosening it, assisting the lungs and throat to throw off the offending matter, which causes the cough, and thus scientifically making the cure perfect; while most of the cough remedies kept for sale, stop the cough by their anodyne and constringing effects, retaining the mucus and all offending matters in the blood, causing permanent disease of the lungs.

But, notwithstanding the known value of this "Cough Tincture," where the tamarack and other ingredients can be obtained, I must give my preference to the "Cough Syrup," No. 7.

9. **Cough Pill.**—Extract of hyoscyamus, balm of gilead buds, with pulverized ipecac, or lobelia, and balsam of fir, of each, ¼ oz.; oil of anise, a few drops to form into common sized pills. **Dose**—One or 2 pills 3 or 4 times daily.

Dr. Beach says he .endeavored for more than twenty-five years to obtain a medicine to fulfill the indications which are effected in this cough pill, particularly for ordinary colds and coughs; and this admirably answers the intention, excelling all others. It allays the irritation of the mucous membrane, the bronchial tubes, and the lungs, and will be found exceedingly valuable in deep-seated coughs and all diseases of the chest. The bad effects of opium (so much used in coughs) are in this pill entirely obviated, and it is altogether better than the Cough Drops, which I now dispense with.—Beach's American Practice.

WHOOPING COUGH.—Syrup.—Onions and garlic, sliced, of each, 1 gill; sweet oil, 1 gill; stew them in the oil, in a covered dish, to obtain the juices; then strain and add honey, 1 gill; paregoric and spirits of camphor, of each, ½ oz.; bottle and cork tight for use. **Dose**—For a child of 2 or 3 years, 1 teaspoon 3 or 4 times daily, or whenever the cough is troublesome, increasing or lessening, according to age.

This is a granny's prescription, but I care not from what source I derive information, if it gives the satisfaction that this has done, upon experiment. This lady has raised a large family of her own children, and grandchildren in abundance. We have tried it with three of our children also, and prescribed it in many other cases with satisfaction, for over seven years. It is excellent also in common colds attended with much cough. This is from experience, too, whom I have found a very competent teacher.

It is said that an European physician has discovered that the dangerous symptoms of whooping cough are due to suppressed cutaneous eruptions, and that an external irritant or artificial rash, is a sure remedy. See "Small Pox."

2. **Dailey's Whooping Cough Syrup.**—Take the strongest West India rum, 1 pt.; anise oil, 2 ozs.; honey, 1 pt.; lemon juice, 4 ozs.; mix. **Dose**—For adults, 1 table-spoon 3 or 4 times a day —children, 1 tea-spoon, with as much sugar and water.

He says that he has successfully treated more than one hundred cases with this syrup.

3. **Soreness or Hoarseness from Coughs.—Remedy.**—Spikenard root, bruised and steeped in a tea pot, by using half water

and half spirits; then inhaling the steam, when not too hot, by breathing through the spout, will relieve the soreness and hoarseness of the lungs, or throat, arising from much coughing.

IN-GROWING TOE NAIL.—To Cure.—We take the following remedy for a very common and very painful affliction, from the Boston Medical and Surgical Journal:

"The patient on whom I first tried this plan was a young lady who had been unable to put on a shoe for several months, and decidedly the worst I have ever seen. The edge of the nail was deeply undermined, the granulations formed a high ridge, partly covered with the skin; and pus constantly oozed from the root of the nail. The whole toe was swollen and extremely painful and tender. My mode of proceeding was this:

"I put a very small piece of tallow in a spoon, and heated it until it became very hot, and poured it on the granulations. The effect was almost magical. Pain and tenderness were at once relieved, and in a few days the granulations were all gone, the diseased parts dry and destitute of all feeling, and the edge of the nail exposed so as to admit of being pared away without any inconvenience. The cure was complete, and the trouble never returned.

"I have tried the plan repeatedly since, with the same satisfactory results. The operation causes but little pain, if the tallow is properly heated. A repetition in some cases might be necessary, although I have never met with a case that did not yield to one application." It has now been proven, in many other cases, to be effectual, accomplishing in one minute, without pain, all that can be effected by the painful application of nitrate of silver for several weeks."

OILS.—British Oil.—Linseed and turpentine oils, of each, 8 ozs.; oils of amber and juniper, of each 4 ozs.; Barbadoes tar, 3 ozs.; seneca oil, 1 oz.; mix.

This is an old prescription, but it is worth the whole cost of this book to any one needing an application for cuts, bruises, swellings, and sores of almost every description, on persons, horses, or cattle; so is the following, also:

2. **Balm of Gilead Oil.**—Balm of Gilead buds, any quantity; place them in a suitable dish for stewing, and pour upon them sufficient sweet oil to just cover them; stew thoroughly and press out all of the oil from the buds, and bottle for use.

It will be found very valuable as a healing oil, or lard can be used in place of the oil, making an excellent ointment for cuts, bruises, &c.

3. **Harlem Oil, or Welch Medicamentum.**—Sublimed or flowers of sulphur and oil of amber, of each, 2 oz.; linseed oil, 1 lb.; spirits of turpentine sufficient to reduce all to the consistence of thin molasses. Boil the sulphur in the linseed oil until it is dissolved, then add the oil of amber and turpentine. **Dose**—From 15 to 25 drops, morning and evening.

Amongst the Welch and Germans it is extensively used for strengthening the stomach, kidneys, liver and lungs, asthma, shortness of breath, cough, inward or outward sores, dropsy, worms, gravel, fevers, palpitation of the heart, giddiness, headache, &c., &c., by taking it internally, and for ulcers, malignant sores, cankers, &c., anointing externally, and wetting linen with it and applying to burns. In fact, if one-half that is said of its value is true, no other medicine need ever be made. It has this much in its favor, however—probably no other medicine now in use has been in use half so long—over 160 years. The dose for a child is one drop for each year of its age.

4. **Oil of Spike.**—The genuine oil of spike is made from the lavendula spica (broad leaved lavender), but the commercial oil of spike is made by taking the rock oil, and adding 2 ozs. of spirits of turpentine to each pint.

The rock oil which is obtained in Ohio, near Warren, is thicker and better than any other which I have ever used.

5. **Black Oils.**—Best alcohol, tincture of arnica, British oil, and oil of tar, of each, 2 ozs., and slowly add sulphuric acid, ½ oz.

These black oils are getting into extensive use, as a liniment, and are indeed valuable, especially in cases attended with much inflammation.

6. **Another Method**—Is to take sulphuric acid, 2 ozs.; nitric acid, 1 oz.; quicksilver, ½ oz.; put them together in a quart bottle or an open crock until dissolved; then slowly add olive oil and spirits of turpentine, of each, ½ pint,; putting in the oil first. Let the work be done out of doors to avoid the fumes arising from the mixture; when all is done, bottle and put in all the cotton cloths it will dissolve, when it is fit for use.

The mixture becomes quite hot, although no heat is used in making it, from setting free what is called latent, or insensible heat, by their combining together. Rev. Mr. Way, of Plymouth, Mich., cured himself of sore throat by taking a few drops of this black oil upon sugar, letting it slowly dissolve upon the tongue, each evening after preaching, also wetting cloths and binding upon the neck. It will be necessary to avoid getting it upon cotton or linen which you would not wish to show a stain. A colt which had a fistulous opening between the hind legs, from a snag, as supposed, which reduced him so that he had to be lifted up, when down, was cured by injecting twice only, of this oil to fill the diseased place. Also a very bad fever sore, upon the leg, ah! Excuse me, upon the limb of a young lady, which baffled the scientific skill of the town in which she lived. In case they bite too much in any of their applications, wet a piece of brown paper in water and lay it over the parts.

OPODELDOC.—Liquid.—Best brandy, 1 qt.; warm it and add gum camphor, 1 oz.; salammoniac and oil of wormwood, of each, ¼ oz.; oils of origanum and rosemary, of each, ½ oz.; when the oils are dissolved by the aid of the heat, add soft soap, 6 oz.

Its uses are too well known to need further description.

DIARRHEAS.—Cordial.—The best rhubarb root, pulverized, 1 oz.; peppermint leaf, 1 oz.; capsicum, ⅛ oz.; cover with boiling water and steep thoroughly, strain, and add bi-carbonate of potash and essence of cinnamon, of each, ½ oz.; with brandy (or good whisky) equal in amount to the whole, and loaf sugar, 4 oz. **Dose**—For an adult, 1 to 2 tablespoons; for a child, 1 to 2 tea-spoons, from 3 to 6 times per day, until relief is obtained.

This preparation has been my dependence, in my travels and in my family for several years, and it has never failed us; but in extremely bad cases it might be well to use, after each passage, the following:

2. **Injection for Chronic Diarrhea.**—New milk, with thick mucilage of slippery elm, of each, 1 pt.; sweet oil, 1 gill; molasses, ½ pt.; salt, 1 oz.; laudanum, 1 dr. Mix, and inject what the bowels will retain.

Very many children, as well as grown persons, die annually, of this disease, who might be saved by a proper use of the above injection and cordial. The injection should never be neglected, if there is the least danger apprehended.

Although I believe these would not fail in one case out of one hundred, yet I have some other prescriptions which are so highly spoken of, I will give a few more. The first from Mr. Hendee, of Warsaw, Indiana, for curing Diarrhea, or Bloody Flux, as follows:

3. **Diarrhea Tincture.**—Compound tincture of myrrh, 6 ozs.; tincture of rhubarb, and spirits of lavender, of each, 5 ozs.; tincture of opium, 3 ozs.; oils of anise and cinnamon, with gum camphor and tartaric acid of each, 1-3 oz. Mix. **Dose**—One teaspoon in ½ a tea cup of warm water sweetened with loaf sugar; repeat after each passage.

He says he has cured many cases after given up by physicians. It must be a decidedly good preparation. Or, again:

4. **Diarrhea Drops.**—Tincture of rhubarb, and compound spirits of lavender, of each, 4 ozs.; laudanum, 2 ozs.; cinnamon oil, 2 drops. Mix. **Dose**—One teaspoon every 3 or 4 hours, according to the severity of the case.

This speaks from ten years successful experience.

5. **Diarrhea Syrup.—For Cases Brought on by Long-Continued Use of Calomel.**—Boxwood, black cherry and prickly ash barks, with dandelion root, of each, 2 oz.; butternut bark, 1 oz.; boil thoroughly, strain and boil down to 1 qt.; then add loaf sugar, 2 lbs., and alcohol, 1 gill, or brandy, ½ pt. **Dose.**—A wine glass from 3 to 5 times daily, according to circumstances.

This regulates the bowels and tones up the system at the same time, no matter whether loose or costive. In one case of costiveness it brought a man around all right who had been bound up tight for twelve days. On the other hand, it has regulated the system after months of calomel-Diarrhea.

6. **Wintergreen Berries** have been found a valuable corrector of Diarrhea brought on by the long-continued use of calomel in cases of fever, eating a quart of them in three days' time.

The gentleman of whom I obtained this item tells me that wintergreen essence has done the same thing, when the berries could not be obtained. In the first place, "everything else," as the saying is, had been tried in vain, and the man's wife, in coming across the woods, found these berries and picked some, which when the husband saw, he craved, and would not rest without them, and notwithstanding the fears of friends, they cured him. Many valuable discoveries are made in a similar manner.

7. **Dried Whortleberries**, steeped, and the juice drank freely, has cured Diarrhea and Bloody Flux, both in children and adults.

8. **Diarrhea and Canker Tea.**—Pulverized hemlock bark, (it is generally kept by Druggists,) 1 table-spoon, steeped in half a tea-cup of water.

For young children, in Diarrhea, or Canker, or when they are combined, feed a teaspoon of it, or less, according to the child's age, two or three times daily, until cured. To overcome costiveness, which may arise from its use, scorch fresh butter and give it in place of oil, and in quantities corresponding with oil. Children have been saved with three cents' worth of this bark which "Allopath" said must die. If good for children, it is good for adults, by simply increasing the dose.

9. Sumac bobs, steeped and sweetened with loaf sugar, has been found very valuable for Diarrhea; adding in very severe cases, alum pulverized, a rounding tea-spoon, to 1 pt. of the strong tea. **Dose**—A tea to a tablespoon, according to the age of the child, and the severity of the case.

It saved the life of a child when two M. D.s (Mule Drivers) said it could not be saved.

CHOLERA TINCTURE.—Select the thinnest cinnamon bark, cloves, gum guaiac, all pulverized, of each, 1 oz.; very best brandy, 1 qt. Mix, and shake occasionally for a week, according to the condition and robustness or strength of the system. It may be repeated at intervals of 1 to 4 hours, if necessary, or much more often, according to the condition of the bowels.

This I have from an old railroad boss who used it with his men during the last Cholera in Ohio, and never lost a man, whilst other jobbers left the road, or lost their men in abundance, thinking the above too simple to be of any value.

2. **Isthmus Cholera Tincture.**—Tincture of rhubarb, cayenne, opium, and spirits of camphor, with essence of peppermint, equal parts of each and each as strong as can be made. **Dose**—From 5 to 30 drops, or even to 60, and repeat until relief is obtained, every 5 to 30 minutes.

C. H. Cuyler, who was detained upon the Isthmus during the cholera period, was saved by this prescription, as also many others.

3. **Cholera Preventive.**—Hoffman's anodyne and essence of peppermint, of each, 2 ozs.; tincture of ginger, 1 oz.; laudanum, spirits of camphor, and tincture of cayenne, of each, ¼ oz.; mix. **Dose**—For an adult, from a tea to a tablespoon, to be well shaken and taken with sweetened water.

5. **German Cholera Tincture.**—Sulphuric ether, 2 ozs.; and put into it castor and gentian, of each, ¼ oz.; opium and agaric, each, 1 dr.; gum camphor, ½ oz.; let them stand 2 days, then add alcohol, 1 qt., and let stand 14 days, when it is ready for use. **Dose**—One teaspoon every 15 or 20 minutes, according to the urgency of the case.

I obtained this prescription of a German at Lawrenceburgh, Ind., who had done very much good with it during the last cholera period in that place.

6.—**Egyptian Cure for Cholera.**—Best Jamaica ginger root, bruised, 1 oz.; cayenne, 2 tea-spoons; boil all in 1 qt. of water to ½ pt., and add loaf sugar to form thick syrup. **Dose.**—One tablespoon every 15 minutes, until vomiting and purging ceases, then follow up with a blackberry tea.

The foregoing was obtained of a physician who practiced in Egypt, (not the Illinois Egypt,) during the great devastation of the cholera there, with which he saved many lives.

7. **India Prescription for Cholera.**—First dissolve gum camphor, ¼ oz., in 1½ ozs. of alcohol—second, give a tea-spoon of spirits of hartshorn in a wine glass of water, and follow it every 5 minutes with 15 drops of the camphor, in a tea-spoon of water, for 3 doses, then wait 15 minutes, and commence again as before, and continue the camphor for 30 minutes, unless there is returning heat. Should this be the case, give one more dose and the cure is effected; let them perspire freely (which the medicine is designed to cause), as upon this the life depends, but add no additional clothing.

Lady Ponsonby, who had spent several years in India, and had proved the efficacy of the foregoing, returned to Dublin in 1832, and published it in the Dublin Mail, for the benefit of her countrymen, declaring that she never knew it to fail.

I would say be sure you have the cholera, as the teaspoon of hartshorn would be a double dose for ordinary cases of disease.

8. **Nature's Cholera Medicine.**—Laudanum, spirits of camphor and tincture of rhubarb, equal parts of each. **Dose**—One tablespoon every 15 to 30 minutes until relieved.

In attacks of cholera the patient usually feels a general uneasiness and heat about the stomach, increasing to actual distress and great anxiety, finally sickness, with vomiting and purging, surface constringed, the whole powers of the system concentrated upon the internal organs, involving the nervous system, bringing on spasms and in the end death. Now, whatever will allay this uneasiness, drive to the surface, correct the discharges and soothe the nerves, cures the disease. The laudanum does the first and the last, the camphor drives to the surface and the rhubarb corrects the alimentary canal; and if accompanied with the hot bath, frictions, etc., is doubly sure. And to show what may be done with impunity in extreme cases, let me say that Merritt Blakeley, living near Flat Rock, Mich., came home from Detroit during the last cholera season, having the cholera in its last stage—that is, with the vomiting, purging and spasms; the foregoing medicine being in the house, the wife in her hurry and excitement, in place of two-thirds of a tablespoon, she read two-thirds of a tea-cup, and gave it accordingly and saved his life; while if taken in the spoon doses at this stage of the disease he would most undoubtedly never have rallied from the collapse into which he was fast sinking; yet in the commencement they would have been as effectual; so mistake would be generally accredited with saving the patient; I say Providence did the work.

Five to 10 drops would be a dose for a child of 2 to 5 years, and in this dose it saved a child of 2½ years in a bad case of bloody flux.

If any one is permitted to die with all these prescriptions before them, it must be because a proper attention is not given; for God most undoubtedly works through the use of means, and is best pleased to see His children wear out rather than break by collision of machinery on the way.

CHOLIC AND CHOLERA MORBUS.—Treatment.—Cholera morbus arises from a diseased condition of the bile, often brought on by over-indulgence with vegetables, especially unripe fruits; usually commencing with sickness and pain at the stomach, followed by the most excruciating pain and griping of the bowels, succeeded by vomiting and purging, which soon prostrate the patient. The person finds himself unavoidably drawn into a coil by the contraction of the muscles of the abdomen and extremities. Thirst very great, evacuations tinged with bile, and finally nearly all very bilious.

Treatment.—The difficulty arises from the acidity of the bile; then take saleratus, peppermint leaf and rhubarb root, pulverized, of each a rounding teaspoon, put into a cup, which you can cover, and pour upon them boiling water, ½ pt.; when nearly cold add a tablespoon of alcohol, or twice as much brandy or other spirits. **Dose**—Two to 3 tablespoons every 20 to 30 minutes, as often and as long as the vomiting and painful purgations continue. If there should be long continued pain about the navel, use the "Injection" as mentioned under that head, in connection with the above treatment, and you will have nothing to fear. If the first dose or two should be vomited repeat it immediately until retained.

The above preparation ought to be made by every family and kept on hand by bottling; for diseases of this character are as liable to come on in the night as at any other time; then much time must be lost in making fires, or getting the articles together with which to make it.

2. **Common Cholic.**—There is a kind of cholic which some persons are afflicted with, from their youth up, not attended with vomiting or purging. I was afflicted with it from my earliest recollection until I was over 20 years of age, sometimes two or three times yearly.

In one of these fits, about that age, a neighbor woman came in, and as soon as she found out what was the matter with me she went out and pulled up a bunch of blue vervain, knocked the dirt from the roots, then cut them off and put a good handful of them into a basin, and poured boiling water upon them and steeped for a short time, poured out a saucer of tea and gave me to drink, asking no questions, but simply saying, "If you will drink this tea every day for a month you will never have colic again as long as you live." I drank it, and in 15 minutes I was perfectly happy; the transition from extreme pain to immediate and perfect relief is too great to allow me to find words adequate to describe the difference.

I continued its use as directed, and have not had a cholic pain since, nearly 30 years. I have told it to others, with the same result. It also forms a good tonic in agues and after fevers, etc.

CARMINATIVES.—For the more common pains of the stomach, arising from accumulating gas in adults or children, the following preparation will be found very valuable, and much better than the plan of resorting to any of the opium mixtures for a constant practice, as many unwisely or wickedly do. See the remarks after "Godfrey's Cordial," and through this subject.

Compound spirits of lavender, spirits of camphor and tincture of ginger, of each 1 oz.; sulphuric ether and tincture of cayenne, of each ½ oz. Mix and keep tightly corked. **Dose**—For an adult, 1 teaspoon every 15 minutes until relieved; for a child of 2 years, 5 drops, and more or less, according to age and the severity of the pain.

2. **Carminative for Children.**—Angelica and white roots, of each 4 ozs.; valerian and sculcap roots, with poppy heads, of each, 2 ozs.; sweet-flag root, ¾ oz.; anise, dill and fennel seed, with catmint leaves and flowers, motherwort and mace, of each 1 oz.; castor and cochineal, of each ½ oz.; camphor gum, 2 scruples, benzoic acid (called flower of benzoin), ¼ oz.; alcohol and water, of each, 1 qt., or rum or brandy, 2 qts.; loaf or crushed sugar, 1 lb. Pulverize all of the herbs and roots moderately fine, and place in a suitable sized bottle, adding the spirits or alcohol and water, and keep warm for a week, shaking once or twice every day; then filter or strain and add the camphor and benzoin, shaking well; now dissolve the sugar in another quart of water by heat, and add to the spirit tincture, and all is complete. **Dose**—For a very young child, from 3 to 5 drops; if 1 year old, about 10 drops, and from that up to 1 teaspoon, if 2 to 5 years old, etc. For adults, from 1 to 4 teaspoons, according to the severity of the pain—to be taken in a cup of catmint or catnip tea for adults, and in a spoon of the same for children. It may be repeated every 2 to 6 hours, as needed.

Uses.—It eases pain, creates a moderate appetite and perspiration and produces refreshing sleep; is also excellent for removing flatulency or wind cholic, and valuable in hysteria and other nervous affections, female debility, etc., in place of the opium anodynes.

SEIDLITZ POWDERS.—**Genuine.**—Rochelle salts, 2 drs.; bicarbonate of soda, 2 scruples; put these into a blue paper, and put tartaric acid, 35 grs., into a white paper. To use, put each into different tumblers; fill 1-3 with water and put a little loaf sugar in with the acid, then pour together and drink.

This makes a very pleasant cathartic, and ought to be used more generally than it is in place of the more severe medicines. Families can buy 3 ozs. of the Rochelle-salts, and 1 oz. of the bi-carbonate of soda, and mix evenly together, using about 2 teaspoons for 1 glass, and have the tartaric acid by itself and use a little over ½ a teaspoon of it for the other glass, with a tablespoon of sugar, all well dissolved; then pour together and drink while effervescing; and they will find this to do just as well as to have them weighed out and put up in papers, which cost three times as much and do no better. Try it, as a child will take it with pleasure as a nice beverage and ask for more.

A lady once lost her life, thinking to have a little sport by drinking one glass of this preparation, following it directly with the other. The large amount of gas disengaged ruptured the stomach immediately.

DIPHTHERIA.—Dr. Phinney's Remedy, of Boston.—Dr. Phinney, of Boston, furnishes the Journal of that city with a recipe for diphtheria, which has recently been republished by the Detroit Daily Advertiser, containing so much sound sense and so decidedly the best thing that I have ever seen recommended for it that I cannot forbear giving it an insertion, and also recommend it as the dependence in that disease.

He says "the remedy on which I chiefly depend is the Actea Racemosa, or black snake-root, which is used both locally as a gargle and taken internally.

"As a gargle, 1 teaspoon of the tincture is added to 2 tablespoons of water, and gargled every hour for twenty-four hours, or till the progress of the disease is arrested; after which the intervals may be extended to an hour and a half or more, as the symptoms may justify. In connection with the use of the gargle, or separately, the adult patient should take internally to the amount of two or three tablespoons of the tincture in the course of twenty-four hours.

"In addition to the foregoing give 10 drops of the muriated tincture of iron 3 times in the 24 hours, and a powder from 3 to 5 grains of the chlorate of potash in the intervals.

"Under this treatment a very decided improvement takes place within the first 24 hours, the ash colored membrane disappears usually within two days and the patient overcomes the malignant tendency of the disease.

"The foregoing doses are for adults; for children they should, of course, be diminished according to age, etc. It will be observed that great importance is attached to the frequent use of the gargle—that is, every hour—in order to overcome the morbific tendency of disease by a constantly counteracting impression. In order to guard against a relapse an occasional use of the remedies should be continued for several days after the removal of the membrane and subsidence of unpleasant symptoms. To complete the cure a generous diet and other restoratives may be used as the intelligent practitioner shall direct."

CATHARTICS.—Vegetable Physic.—Jalap and peppermint leaf, of each 1 oz.; senna, 2 ozs.; pulverize all very finely and sift through gauze, bottle it and keep corked. **Dose**—Put a rounding teaspoon of the powder and a heaping teaspoon of sugar into a cup and pour 3 or 4 spoons of boiling water upon them; when cool stir it up and drink all. The best time for taking it is in the morning, not taking breakfast, but drinking freely of cornmeal gruel. If it does not operate in 3 hours repeat half the dose until a free operation is obtained.

Dr. Beach first brought this preparation, nearly in its present proportions, to the notice of the Eclectic practitioners, who have found it worthy of very great confidence, and applicable in all cases where a general cathartic action is required. It may be made into syrup or pills, if preferred.

2. **Indian Cathartic Pills.**—Aloes and gamboge, of each 1 oz.; mandrake and blood-root, with gum myrrh, of each ¼ oz.; gum camphor and cayenne, of each 1½ drs.; ginger, 4 ozs.; all finely pulverized and thoroughly mixed with thick mucilage (made by putting a little water upon equal quantities of gum arabic and gum tragacanth) into pill mass; then formed into common sized pills. **Dose**—Two to 4 pills, according to the robustness of the patient.

Families should always have some of these cathartics, as well as other remedies, in the house, to be prepared for accident, providence, or emergence, whichever you please to call it. They may be sugar-coated, as directed under that head, if desired.

TOOTHACHE AND NEURALGIA REMEDIES.—Magnetic Tooth Cordial and Pain Killer.—Best alcohol, 1 oz.; laudanum, ⅛ oz.; chloroform, liquid measure, ⅝ oz.; gum camphor, ⅛ oz.; oil of cloves, ½ dr.; sulphuric ether, ¾ oz.; and oil of lavender, 1 dr. If there is a nerve exposed this will quiet it. Apply with lint. Rub also on the gums and upon the face against the tooth freely.

"The raging toothache why endure, when there is found a perfect cure?
Which saves the tooth and stops the pain, and gives the sufferer ease again."

In the case of an ulcerated tooth at Georgetown, Ohio, Mr. Jenkins, the proprietor of the Jenkins House, had been suffering for eight days, and I relieved him by bathing the face with this preparation, using a sponge for two or three minutes only, taking a teaspoon or two into the mouth for a minute or two, as it had broken upon the inside. The operation of the cordial was really magical, according to old notions of cure.

I offered to sell a grocer a book at Lawrenceburgh, Ind. He read until he saw the "Magnetic Tooth Cure" mentioned. Then he said: "If you will cure my toothache I will buy one." I applied the cordial, it being late Saturday evening, and on Monday morning he was the first man on hand for his book.

The Sheriff of Wayne Co., Ind., at Centerville, had been suffering three days of neuralgia, and I gave him such decided relief in one evening with this cordial that he gave me a three-dollar piece with the remark, "Take whatever you please."

In passing from Conneatville, Pa., upon a canal boat, the cook (who was the wife of one of the steersmen) was taken after supper with a severe pain in the stomach. There being no peppermint on board, and, strange as it may appear, no spirits of any kind whatever, I was applied to as a physician to contrive something for her relief. I ran my mind over the articles I had with me, and could not hit upon any other so likely to benefit as the "Tooth Cordial," arguing in my mind that if good for pain where it could be applied to the spot externally, I could apply it to the point of pain internally in this case (the stomach) as well. I gave her a teaspoon of it in water, and waited five minutes without relief, but concluding to go "whole hog or none," I repeated the dose, and inside of the next five minutes she was perfectly cured. Her husband, the other steersman also, and one of the drivers bought each a book, and the next week in Erie one of her neighbors bought another upon her recommendation, since which myself and agents have freely used it and recommended it for similar conditions with equal success.

The cases are too numerous to mention more. I mention these to give confidence to purchasers, that all who need it will not fail to give it a trial. It is good for any local pain wherever it can be applied. Pain will not long exist under its use.

2. **Homeopathic Tooth Cordial.**—Alcohol, ½ pt.; tincture of arnica and chloroform, of each 1 oz.; oil of cloves, ½ oz. Mix and apply as the other.

There are many persons who would prefer this last to the foregoing, from the presence of arnica, and it is especially valuable as a liniment for bruises involving effusion of blood under the skin.

3. **Neuralgia—Internal Remedy.**— Sal-ammoniac ½ dr.; dissolve in water, 1 oz. **Dose**—One tablespoon every 3 minutes for 20 minutes, at the end of which time, if not before, the pain will have disappeared.

The foregoing is from a gentleman who had been long afflicted with the disease, who found no success with any other remedy. Instead of common water, the "Camphor Water" or "Mint Water" might by some be preferred. The ammonia is a very diffusable stimulant, quickly extending to the whole system, especially tending to the surface.

4. **King of Oils, for Neuralgia and Rheumatism.**—Burning fluid, 1 pt.; oils of cedar, hemlock, sassafras and origanum, of each 2 ozs.; carbonate of ammonia, pulverized, 1 oz.; mix. **Directions**—Apply freely to the nerve and gums, around the tooth, and to the face, in neuralgic pains, by wetting brown paper and laying on the parts, not too long, for fear of blistering, to the nerves of teeth by lint.

A blacksmith, of Sturgis, Mich., cured himself and others with this, of neuralgia, after physicians could give no relief.

5. Several years ago I was stopping for a number of weeks at a hotel near Detroit. While there toothache was once made the subject of conversation, at which time the landlady, a Mrs. Wood, said she had been driven by it to an extreme measure, no less than boiling wormwood herb in alcohol and taking a tablespoon of it into the mouth boiling hot, immediately closing the mouth, turning the head in such a way as to bring the alcohol into contact with all of the teeth, then spitting it out and taking the second immediately in the same way,

having the boiling kept up by setting the tin containing it upon a shovel of hot coals, bringing it near the mouth. She said she never had toothache after it, nor did it injure the mouth in the least, but for the moment she thought her head had collapsed or the heavens and earth come together. And although the lady's appearance and deportment was such as to gain general esteem, I dared not try it or recommend it to others. But during the last season I found a gentleman who had tried the same thing in the same way, except he took four spoons in his mouth at a time, and did not observe to keep his mouth closed to prevent the contact of the air with the alcohol, the result of which was a scalded mouth, yet a perfect cure of the pain and no recurrence of it for 12 years up to the time of conversation. And I do not now give the plan expecting it to become a general favorite, but more to show the severity of the pain, forcing patients to such extreme remedies. It would not be applicable only in cases where the pain was confined entirely to the teeth.

6. **Horse-Radish Root,** bruised and bound upon the face or other parts where pain is located, has been found very valuable for their relief. And I think it better than the leaf for drafts to the feet or other parts.

7. **Teeth—Extracting with Little or no Pain.**—Dr. Dunlap a dentist of Chillicothe, Ohio, while filling a tooth for me, called my attention to the following recipe given by a dental publication to prevent pain in extracting teeth. He had used it. It will be found valuable for all who must have teeth extracted, for the feeling is sufficiently unpleasant even when all is done that can be for relief.

Tincture of aconite, chloroform and alcohol, of each 1 oz.; morphine, 6 grs.; mix. **Manner of Application.**—Moisten two pledgets of cotton with the liquid and apply to the gums on each side of the tooth to be extracted, holding them to their place with pliers or some other convenient instrument for 5 to 15 minutes, rubbing the gum freely inside and out.

My wife has had six teeth taken at a sitting, but the last two she wished to have out, she could not make up her mind to the work until I promised her it should not hurt in the extraction, which I accomplished by accompanying her to Dr. Porter's dental office, of this city, and administering chloroform in the usual way, just to the point of nervous stimulation or until its effects were felt over the whole system, at which time the teeth were taken, not causing pain, she says, equal to toothache for one minute. Not the slightest inconvenience was experienced from the effects of the chloroform. I consider this plan, and so does Dr. Porter, far preferable to administering it until entire stuperaction, by which many valuable lives have been lost.

8. **Dentrifice which Removes Tartareous Adhesions, Arrests Decay and Induces a Healthy Action of the Gums.**—Dissolve 1 oz. of borax in 1½ pts. of boiling water, and when a little cool add 1 teaspoon of the tincture of myrrh and 1 tablespoon of the spirits of camphor and bottle for use. **Directions**—At bed-

time wash out the mouth with water, using a badger's hair brush (bristle brushes tear the gums and should never be used); then take a tablespoon of the dentrifice with as much warm water and rub the teeth and gums well each night until the end is attained.

9. **Tooth-Wash—To Remove Blackness.**—Pure muriatic acid, 1 oz.; water, 1 oz.; honey, 2 ozs.; mix. Take a tooth brush and wet it freely with this preparation and briskly rub the black teeth, and in a moment's time they will be perfectly white; then immediately wash out the mouth with water, that the acid may not act upon the enamel of the teeth.

It need not be used often, say once in three or four months, as the teeth become black again, washing out quickly every time. Without the washing after its use it would injure the teeth, with it it never will. This blackness is hard to remove, even with the brush and tooth powder.

10. Dr. Thompson, of Evansville, Ind., gives the above in 20-drop doses 3 times daily for laryngitis or bronchitis, taken in a little water, throwing it back past the teeth.

11. **Tooth Powder—Excellent.**—Take any quantity of finely pulverized chalk and twice as much finely pulverized charcoal; make very fine; then add a very little suds, made with castile soap and sufficient spirits of camphor to wet all to a thick paste. Apply with the finger, rubbing thoroughly, and it will whiten the teeth better than any tooth powder you can buy.

I noticed the past season a piece going the rounds of the papers, "that charcoal ought not to be used on the teeth." I will only add that a daughter of mine has used this powder over six years, and her teeth are very white and no damage to the enamel as yet. Six years would show up the evil if death was in the pot. Coal from basswood or other soft wood is the easiest pulverized.

ESSENCE.—Druggists' rules for making essences is to use one ounce of oil to one quart of alcohol, but many of them do not use more than half of that amount, while most of the peddlars do not have them made of over one-fourth that strength. I would hardly set them away if presented. I have always made them as follows:

Peppermint oil, 1 oz.; best alcohol, 1 pt., and the same amount of any other oil for any other essence which you desire to make. **Dose**—A dose of this strength of essense will be only from 10 to 30 drops.

With most essences a man can drink a whole bottle without danger or benefit. Peppermint is colored with tincture of tumeric, cinnamon with tincture of red sandal or sanders wood, and wintergreen with tincture of kino. There is no color, however, for essences, so natural as to put the green leaf of which the oil is made into the jar of essence, and let it remain over night, or about 12 hours; then pour off or filter it for sale. But if families are making for their own use, they need not bother to color them at all. But many believe if they are highly colored they are necessarily strong, but it has no effect upon the strength whatever, unless colored with the leaf or bark, as here recommended. Cinnamon bark does in place of the leaf. See "Extracts."

TINCTURES.—In making any of the tinctures in common use or in making any of the medicines called for in this work, or in works generally, it is not only expected but absolutely necessary that the roots, leaves, barks, etc., should be dry, unless otherwise directed. Then

Take the root, herb, bark, leaf or gum called for, 2 ozs.; and bruise it; then pour boiling water, ½ pt., upon it, and when cold add best alcohol, ½ pt., keeping warm for from 4 to 6 days, or letting it stand 10 or 12 days without warmth, shaking once or twice daily; then filter or strain; or it may stand upon the dregs and be carefully poured off as needed.

With any person of common judgment the foregoing directions are just as good as to take up 40 times as much space by saying, take lobelia, herb and seed, 2 ozs.; alcohol, ½ pt.; boiling water, ½ pt., then do the same thing over and over again, with every tincture which may be called for; or at least those who cannot go ahead with the foregoing instructions are not fit to handle medicines at all; so I leave the subject with those for whom the given information is sufficient.

In making compound tinctures you can combine the simple tinctures or make them by putting the different articles into a bottle together, then use the alcohol and water it would require if you was making each tincture separately.

TETTER, RINGWORM AND BARBER'S ITCH.—To Cure.—Take the best Cuba cigars, smoke one a sufficient length of time to accumulated ¼ or ½ inch of ashes upon the end of the cigar; now wet the whole surface of the sore with the saliva from the mouth, then rub the ashes from the end of the cigar thoroughly into and all over the sore; do this three times a day, and inside of a week all will be smooth and well.

I speak from extensive experience. Half of one cigar cured myself when a barber would not undertake to shave me. It is equally successful in tetters on other parts of the body, hands, etc.

Tobacco is very valuable in its place (medicine)—like spirits, however, it makes salves of its devotees.

2. **Narrow Leaved** (yellow) dock root, sliced and soaked in good vinegar, used as a wash, is highly recommended as a cure for tetter or ringworm.

BALSAMS.—Dr. R. W. Hutchins' Indian Healings, Formerly Peckham's Cough Balsam.—Clear, pale rosin, 3 lbs., and melt it, adding spirits of turpentine, 1 qt.; balsam of tolu, 1 oz.; balsam of fir, 4 ozs.; oil of hemlock, origanum, with Venice turpentine, of each 1 oz.; strained honey, 4 ozs.; mix well and bottle. **Dose**—Six to 12 drops; for a child of 6, 3 to 5 drops on a little sugar. The dose can be varied according to the ability of the stomach to bear it and the necessity of the case.

It is a valuable preparation for coughs, internal pains or strains and works benignly upon the kidneys.

2. **Doctor Mitchel's Balsam, for Cuts, Bruises, Etc.**—Fenugreek seed and gum myrrh, of each 1 oz.; sassafras root-bark, a

good handful; alcohol, 1 qt.; put all into a bottle and keep warm for 5 days.

Dr. Mitchel, of Pennsylvania, during his life made great use of this balsam for cuts, bruises, abrasions, etc., and it will be found valuable for such purposes.

ARTIFICIAL SKIN.—For Burns, Bruises, Abrasions, Etc.—Proof Against Water.—Take gun cotton and Venice turpentine, equal parts of each, and dissolve them in 20 times as much sulphuric ether, dissolving the cotton first, then adding the turpentine; keep it corked tightly.

The object of the turpentine is to prevent pressure or pinching caused by evaporation of the ether when applied to a bruised surface. Water does not affect it, hence its value for cracked nipples, chapped hands, surface bruises, etc., etc.

DISCUTIENTS.—To Scatter Swellings.—Tobacco and cicuta (water hemlock) leaves, of each 2 ozs.; stramonium (jimpson) and solanum nigrum (garden night shade, sometimes erroneously called deadly night shade), the leaves and yellow dock root, of each 4 ozs.; bitter-sweet, bark of the root, 3 ozs.; extract the strength by boiling with water, pressing out and re-boiling, straining and carefully boiling down to the consistence of an ointment; then add lard, 18 ozs., and simmer together.

It will be used for stiff joints, sprains, bruises attended with swelling when the skin is unbroken, for cancerous lumps, scrofulous swellings, white swellings, rheumatic swellings, etc. It is one of the best discutients or scatterers in use, keeping cancers back often for months.

SMALLPOX.—To Prevent Pitting the Face.—A great discovery is reported to have recently been made by a surgeon of the English army in China to prevent pitting or marking the face. The mode of treatment is as follows:

When in smallpox the preceding fever is at its height and just before the eruption appears, the chest is thoroughly rubbed with croton oil and tartaremetic ointment. This causes the whole of the eruption to appear on that part of the body to the relief of the rest. It also secures a full and complete eruption. This is said to be now the established mode of treatment in the English army in China, by general orders, and is regarded as perfectly effectual.

It is a well-known fact that disease is most likely to make its attack upon the weakest parts, and especially upon places in the system which have been recently weakened by previous disease; hence, if an eruption (disease) is caused by the application of croton oil mixed with a little of the tartaremetic ointment, there is every reason to believe that the eruption in smallpox will locate upon that part instead of the face. The application should be made upon the breast, fore parts of the thighs, etc., not to interfere with the posture upon the bed.

It has been suggested that a similar application will relieve whooping-cough by drawing the irritation from the lungs. If so, why will it not help to keep measles to the surface, especially when they have a tendency to the internal organs, called striking in? It is worth a trial in any of these cases

See "Causes of Inflammation," under the head of "Inflammation."

2. **Common Swellings—To Reduce.**—Tory-weed pounded so as to mash it thoroughly and bound upon any common swelling will very soon reduce the parts to their natural size.

This weed may be known from its annoyance to sheep raisers, as it furnishes a small burr having a dent on one side of it. There are two species of it, but the burr of the other kind has no dent, being round. It will be found very valuable in rheumatism attended with swellings.

WENS.—To Cure.—Dissolve copperas in water to make it very strong; now take a pin, needle or sharp knife and prick or cut the wen in about a dozen places, just sufficient to cause it to bleed; then wet it thoroughly with the copperas water once daily.

This followed for four weeks cured a man residing within four miles of this city, who had six or eight of them, some of them on the head as large as a hen's egg. The preparation is also valuable as a wash in erysipelas.

BLEEDINGS.—Internal and External—Styptic Balsam.—For internal hemorrhage or bleeding from the lungs, stomach, nose, and in excessive menstruation or bleeding from the womb, is made as follows:

Put sulphuric acid, 2½ drs. by weight, in a wedgewood mortar and slowly add oil of turpentine, 1 fluid dr., stirring it constantly with the pestle; then add slowly again, alcohol, 1 fluid dr., and continue to stir as long as any fumes arise from the mixture; then bottle in glass, ground stoppered, bottles. It should be a clear red color, like dark blood, but if made of poor materials it will be a pale, dirty red and unfit for use. **Dose**—To be given by putting 40 drops into a teacup and rubbing it thoroughly with a teaspoon of brown sugar, and then stir in water until the cup is nearly full, and drink immediately; repeat every hour for 3 or 4 hours, but its use should be discontinued as soon as no more fresh blood appears. Age does not injure it, but a skim forms on the top which is to be broken through, using the medicine below.

This preparation was used for 30 years with uniform success by Dr. James Warren before he gave it to the public. Since then Dr. King, of Cincinnati, author of the Eclectic Dispensatory, has spread it, through that work, and many lives have been saved by it. It acts by lessening the force of the circulation (sedative power), as also by its astringent effects in contact with the bleeding vessels. And the probability is that no known remedy can be as safely depended upon for more speedy relief or certainty of cure, especially for the lungs, stomach or nose; but for bleedings from the womb or excessive menstruation I feel to give preference to Prof. Platt's treatment, as shown in the recipe for "Uterine Hemorrhages." No relaxation from business need be required, unless the loss of blood makes it necessary, nor other treatment, except if blood has been swallowed, or if the bleeding is from the stomach, it would be well to give a mild cathartic. Bleeding from the stomach will be distinguished from bleeding from the lungs by a sense of weight, or pain, and unaccompanied by cough and discharged by vomiting, and in larger quantities at a time than from the lungs. The blood will be darker also, and often mixed with particles of food.

Exercise in the open air is preferable to inactivity; and if any symptoms of returning hemorrhage show themselves, begin with the remedy without loss of time and a reasonable hope of cure may be expected.

2. **External Styptic Remedies.**—Take a glazed earthen vessel that will stand heat and put into it water, 2½ pts.; tincture of benzoin, 2 ozs.; alum, ¼ lb., and boil for 6 hours, replacing the water which evaporates in boiling by pouring in boiling water so as not to stop the boiling process, constantly stirring. At the end of 6 hours it is to be filtered or carefully strained and bottled, also in glass stoppered bottles. **Application**—Wet lint and lay upon the wound, binding with bandages to prevent the thickened blood (coagula) from being removed from the mouths of the vessels; keeping them in place for 24 to 48 hours will be sufficient.

If any doubt is felt about this remedy pour a few drops of it into a vessel containing human blood—the larger the quantity of the styptic the thicker will be the blood mass, until it becomes black and thick. Pagliari was the first to introduce this preparation to public notice.—Eclectic Dispensatory.

3. **Styptic Tincture—External Application.**—Best Brandy, 2 ozs.; finely scraped castile soap, 2 drs.; potash, 1 dr.; mix all and shake well when applied. Apply warm by putting lint upon the cut, wet with the mixture.

I have never had occasion to try either of the preparations, but if I do it will be the "Balsam," or "External Syptic," first, and if they should fail I would try the "Tincture," for I feel that it must stop blood, but I also am certain that it would make a sore aside from the cut; yet better have a sore than lose life, of course. These remedies are such that a physician might pass a lifetime without occasion to use, but none the less important to know.

BRONCHOCELE.—Enlarged Neck—To Cure.—Iodid of potassium (often called hydriodate of potash), 2 drs.; iodine, 1 dr.; water, 2½ ozs.; mix and shake a few minutes and pour a little into a vial for internal use. **Dose**—Five to 10 drops before each meal, to be taken in a little water. **External Application**—With a feather wet the enlarged neck, from the other bottle, night and morning, until well.

It will cause the scarf skin to peel off several times before the cure is perfect, leaving it tender, but do not omit the application more than one day at most, and you may rest assured of a cure, if a cure can be performed by any means whatever; many cures have been performed by it, and there is no medicine yet discovered which has proved one-hundredth part as successful.

2. But if you are willing to be longer in performing the cure to avoid the soreness, dissolve the same articles in alcohol.

1 pt., and use the same way as above described—i. e., both internal and external.

PAIN KILLER.—Said to Be Perry Davis'.—Alcohol, 1 qt.; gum guaiac, 1 oz.; gums myrrh and camphor, and cayenne pulverized, of each ½ oz.; mix. Shake occasionally for a week or 10 days and filter or let settle for use. Apply freely to surface pains, or it may be taken in teaspoon doses for internal pains, and repeat according to necessity.

If any one can tell it from its namesake, by its looks or actions, we will then acknowledge that the old minister from whom it was obtained was greatly deceived, although he was perfectly familiar for a long time with Mr. Davis and his mode of preparing the pain-killer.

POISONS.—Antidote.—When it becomes known that a poison has been swallowed, stir salt and ground mustard, of each a heaping teaspoon, into a glass of water and have it drank immediately. It is the quickest emetic known.

It should vomit in one minute. Then give the whites of two or three eggs in a cup or two of the strongest coffee. If no coffee, swallow the egg in sweet cream, and if no cream, sweet milk; if neither, down with the egg.

I have used the mustard with success in the case of my own child, which had swallowed a "quarter" beyond the reach of the finger, but remaining in the throat, which to all appearances would have soon suffocated him. I first took "granny's plan" of turning the head down and patting on the back; failing in this, I mixed a heaping teaspoon of mustard in sufficient water to admit its being swallowed readily, and in a minute we had the quarter dinner and all; without it we should have had no child.

I knew the mustard to work well once upon about 20 men in a boat yard on Belle River, Newport, Mich. I had been furnishing them with "Switchel" at 20 cents per bucket, made by putting about a pound of sugar, a quart of vinegar and two or three tablespoons of ginger to the bucket of water, with a lump of ice. An old man, also in the grocery business, offered to give it to them at 18 pence per bucket, but by some mistake he put in mustard instead of ginger. They had a general vomit, which made them think that cholera had come with the horrors of "Thirty-two," but as the downward effects were not experienced it passed off with great amusement, safely establishing my custom at the 20 cents per bucket.

INFLAMMATORY DISEASES.—Description.—Before I attempt to speak of the inflammation of particular organs, I shall make a few remarks upon the subject in general which will throw out the necessary light for those not already informed, and I should be glad to extend my treatment to all of the particular organs of the body, but the limits of the work only allows me to speak of pleurisy, inflammation of the lungs, etc.; yet Eclectic ideas of inflammation are such that if we can successfully treat inflammation in one part of the system (body) we can with but little modification succeed with it in all of its forms: and my general remarks shall be of such a nature as to enable any judicious person to successfully combat with inflammations in every part of the system. Then:

First.—Inflammation is generally attended with pain, increased heat, redness and swelling. Some or all of these signs always accompany it, according to the structure of the organ affected.

Second.—The more loose the structure of the organ, the less severe will be the pain, and the character of the structure also modifies the character of the pain. In mucous membranes it is burning or stinging. In serious membranes it is lancinating and most usually very sharp and cutting. In fibrous structures it is dull, aching and gnawing. In nervous structures it is quick, jumping and most usually excruciatingly severe; and in nearly all structures more or less soreness is soon present.

Third.—To make the foregoing information of value it becomes necessary to know the structure of the various parts of the system. Although the ultimate portions of muscle or flesh, as usually called, is fibrous, yet there is a loose cellular structure blended with it, which fills up and rounds the form to its graceful beauty—hence, here we have more swelling and less severity of pain. With the rose or red of the lips commences the mucous membrane, which forms the lining coat of the mouth, stomach, etc., through the whole alimentary canal, also lining the urethra, bladder, ureters, vagina, womb, fallopian tubes, etc.; hence the heat always felt in inflammation of these organs. The whole internal surface of the cavity of the body is lined by a serous membrane, which is also reflected or folded upon the lungs—here called pleura (the side), hence pleurisy (inflammation of the pleura or side)—and also folded upon the upper side of the diaphragm, the diaphragm forming a partition between the upper and lower portions of the cavity of the body, the upper portion containing the lungs, heart, large blood vessels, etc., called the chest, more commonly the breast—the lower portion containing the stomach, liver, kidneys, intestines, bladder, etc., called the abdomen, more commonly the bowels. The sides of the abdomen are covered with a continuation of this serous membrane, which is also reflected upon the lower side of the diaphragm, liver, stomach, small and large intestines, bladder, etc., here called peritoneum (to extend around). In all places it secretes (furnishes) a moistening fluid enabling one organ of the body to move upon itself or other organs without friction. This serous membrane is thin, but very firm; hence the sharpness of the pain when it is inflamed, as it cannot yield to the pressure of the accumulating blood.

Fourth.—The ligaments or bands which bind the different parts of the body together at the joints, aud the gracefully contracted ends of the muscles (called tendons) which pass the joint, attaching themselves to the next bone above or below, and the wristlet-like bands which are clasped around the joints through which these tendons play, as over a pulley, when the joint is bent, are all of a fibrous construction, hence the grinding or gnawing pains of rheumatism (inflammations) and injuries of or near joints; and it also accounts for that kind of pain in the latter stages of intestinal inflammations, as the stomach, intestines, etc., are composed of three coats— the external, serous; middle, fibrous; internal, mucous—and when inflammation of the external or internal coats are long continued, it generally involves the middle, fibrous, layer.

Fifth.—The greatest portion of the substance of the lungs is of fibrous tissue, consequently dull or obtuse pain only is experienced when inflamed.

Lastly.—The nervous system, although of a fibrous character, is so indescribably fine in its structure that, like the telegraph wire, as soon as touched it answers with a bound to the call—quick as thought, whether pain or pleasure, jumping, bounding, it goes to the grand citadel (the brain), which overlooks the welfare of the whole temple.

In general the intensity of the pain attending inflammations will surely indicate the violence of the febrile (sympathetic) reaction; for instance, in inflammation of the bronchial tubes the pain is not very severe, consequently not much fever (reaction), but in inflammation of the pleura (pleurisy) the pain is very severe, consequently the febrile reaction exceedingly great.

Causes of Inflammation.—In health the blood is carried evenly in proportion to the size of the blood vessels to every part of the body. And the vessels (arteries and veins) are proportioned in size to the necessity of the system for vitality, nutrition and reparation. Whatever it may be that causes the blood to recede from the surface or any considerable portion of it will cause inflammation of the weakest portion of the system; and whatever will draw the blood unduly to any part of the system will cause inflammation of that part. For instance, cold drives the blood from the surface; consequently, if sufficiently long continued the internal organ least able to bear the accumulation of blood upon it will be excited to inflammation. A blow upon any part, if sufficiently severe, will cause inflammation of the injured part. Also mustard poultices, drafts to the feet, etc.; hence the propriety of their proper use to draw the blood away from the internal organs which are inflamed. A check of perspiration is especially liable to excite inflammation, and that in proportion to the degree of heat producing the perspiration and the length of time which the person may be exposed to the cold. The object of knowing the cause of disease is to avoid suffering from disease by keeping clear of its cause, or thereby to know what remedy to apply for its cure or relief.

There is a class of persons who claim that causes will have their legitimate effects, physical or moral. Physicians know that it is absurd physically—that is, when philosophically and scientifically combated with. For instance, a person is exposed to cold; the blood is driven in upon the internal organs, and the one which is the least able to bear the pressure gives way before the invading enemy, and an inflammation is the result, which if left to itself will terminate in death. But heat and moisture are applied to the constringent surface, the blood is brought back and held there, and a cure is speedily effected; the natural or physical effect of the cause is obviated or avoided.

Then why should it be thought impossible with God that a moral remedy should be provided against moral evils? Thanks be to God, it has been provided to the willing and obedient, through our Lord Jesus Christ, but only to the willing and obedient, morally as well as physically, for if a person will not permit a proper course to be pursued to overcome the consequences arising to his body from cold, he must suffer, not only the inflammation to go on, but also guilt of mind for neglecting his known duty. The same is true in either point of view, only it looks so curious that there should be those who can reason of physical things, but utterly refuse to give up their moral blindness. The consequences be upon their own heads.

Just in proportion to the susceptibility of an organ to take on diseased action is the danger of exposure. For example, if a person has had a previous attack of pleurisy or inflammation of the lungs, those organs, or the one which has been diseased, will be almost certain to be again prostrated, usually called relapse, which is in most cases ten times more severe than the first attack. Then be very careful about exposures when just getting better from these or other disease.

Inflammation terminates by resolution, effusion, suppuration or mortification. By resolution is meant that the parts return to their natural condition; by effusion, that blood may be thrown out from the soft parts or from mucous membranes, that lymph or serum, a colorless part of the blood, may be thrown out by serous membranes, which often form adhesions, preventing the after motions of the affected parts. And here what wisdom is brought to light in the fact that whatever is thrown out from the mucous surface never, or at least very seldom, adhere or grow up. If it did, any part of the alimentary canal from the mouth to the stomach, and so on through the intestines, would be constantly adhering; so also of the lungs, for these various organs are more frequently affected by inflammations than any other parts of the body; by suppuration, when abscesses are formed containing pus (matter), or this may take place upon the surface, when it is usually called canker or corroding ulcers, cancers, etc.; by gangrene (mortification), when death of the parts take place. In this case if the part is sufficiently extensive, or if it is an internal part, death of the whole body if not relieved is the result.

The methods of inflammatory termination is believed to result from the grade of inflammation. For instance, at the circumference of a boil, the inflammation is weak, serum is thrown out; near the center, where the inflammation is a little higher, lymph is poured out and adhesion takes place; next pus, at the center, mortification and consequent sloughing takes place.

In boils the tendency is to suppuration; in carbuncles the tendency is to mortification; but in rheumatism, mumps, etc., there is a strong tendency to resolution, and it is often very difficult to avoid these natural terminations.

The five different tissues of the body also modify the inflammation according to the tissue inflamed, viz., the cellular (fleshy) tissue, is characterized by great swelling, throbbing pain, and by its suppurating in cavities, not spreading all over that tissue. Inflammation of the serous tissue has sharp lancinating pain, scarcely any swelling, but much reaction (fever, throws out lymph, and is very liable to form adhesion; not likely to terminate in mortification, except in peritonitis (inflammation of the lining membrane of the abdominal cavity), which sometimes terminates thus in a few hours, showing the necessity of immediate action. Inflammation of the mucous tissue is characterized by burning heat or stinging pain (hence the heat of the stomach, bowels, etc.), without swelling, not much febrile reaction, and never terminates in resolution (health) without a copious discharge of mucus, as from the nose and lungs, in colds, catarrhs, coughs, etc. Inflammation of the dermoid (skin) tissue, as in erysipelas, is characterized by burning pain, spreads irregularly over the surface, forming blisters containing a yellowish serum, but never forms adhesions, nor suppurates in cavities, but upon the surface. Inflammation of the fibrous tissue, or rheumatic inflammation, is characterized by severe aching or gnawing pain, is not liable to terminate in suppuration nor mortification, nearly always throwing out a gelatinous serum, often causing stiff joints or depositing earthy matter, as in gout; is peculiarly liable to change its place, being very dangerous if in changes of any of the vital organs, as the brain, heart, stomach, etc., and in the acute form the febrile reaction is usually quite severe. Internal inflammation will be known by the constant pain of the inflamed part, by the presence of fever, which does not generally attend a spasmodic or nervous pain, and by the position chosen by the patient to avoid pressure upon the afflicted organs.

Inflammation is known under two heads, acute and chronic. The first is generally rapid and violent in its course and characteristics. The last is usually the result of the first, is more slow and less dangerous in its consequences.

Treatment.—Sound philosophy (Eclecticism) teaches that if cold has driven the blood (consequently the heat) from the surface, heat will draw it back, and thus relieve the internal engorgements (over-full organs), and if held there sufficiently long entirely cure the difficulty (inflammation). Upon the same ground, if a person is cold, warm him; if wet and cold, warm and dry him; if hot, cool him; if dry and hot, wet and cool him. Equalize the circulation and pain or disease cannot exist.

The foregoing remarks must suffice for general directions, but the following special application to pleurisy and inflammation of the lungs shall be sufficiently explicit to enable all to make their general applications:

2. **Pleurisy.**—Pleurisy is an inflammation of the serous membrane enveloping (covering) the lungs, which is also reflected (folded) upon the parieties (sides or walls) of the chest (but I trust all will make themselves familiar with the description of "Inflammation in General" before they proceed with the study

of pleurisy), attended with sharp lancinating pain in the side, difficult breathing, fever, a quick, full and hard pulse, usually commencing with a chill. In many cases the inflammation, consequently the pain, is confined to one point, most commonly about the short ribs, but often gradually extends toward the shoulder and forward part of the breast, the pain increasing and often becoming very violent. It may not but usually is attended with cough, and the expectoration is seldom mixed with blood or very free, but rather of a glairy or mucous character. As the disease advances the pain is compared to a stab with a sharp instrument, full breathing not being indulged, from its increasing the difficulty. The cough also aggravates the pain; great prostration of strength, the countenance expressing anxiety and suffering. The breathing is short, hurried and catching, to avoid increase of pain. In some cases the cough is only slight. It may be complicated with inflammation of the lungs or bronchial tubes, and if so complicated the expectoration will be mixed or streaked with blood. Yet it makes but very little difference, as the treatment is nearly the same, with the exception of expectorants, quite the same, although expectorants are not amiss in pleurisy, but absolutely necessary in inflammation of the lungs. Even Mackintosh, of the "Regulars," says: "It must be recollected that pneumonia (inflammation of the lungs) and pleuritis (pleurisy) frequently co-exist (exist together), but neither is that circumstance of much consequence, being both inflammatory diseases and requiring the same general remedies." But there I stop with him, for I cannot go the bleeding, calomel and antimony. I have quoted his words to satisfy the people that the "Regulars" acknowledge the necessity of a similar treatment in all inflammatory diseases, the difference between the two branches of the profession existing only in the remedies used.

Causes of Pleurisy.—Cold, long applied, constringes (makes smaller) the capillaries (hair-like blood vessels) which cover as a network the whole surface, impairing the circulation, driving the blood internally, causing congestion (an unnatural accumulation of blood) upon the pleura, hence pleurisy. Exposures to rains, especially cold rains, cold, wet feet, recession (striking in) of measles, scarlet fever, rheumatism, etc., often cause inflammation of this character.

Indications.—Relax the whole surface, which removes the obstructions, restore and maintain an equal circulation, and the work is accomplished. The temperature of the surface and extremities is much diminished, showing that the blood has receded (gone) to the internal diseased organs, the temperature of which is much increased; for with the blood goes the vitality (heat) of the body. This condition of the system clearly indicates the treatment, viz., the application of heat to the surface in such a way as to be able to keep it there until nature is again capable of carrying on her own work in her own way.

Treatment.—It has been found that the quickest and least troublesome way in which heat could be applied to the whole surface is by means of burning alcohol, formerly called a "rum sweat," because rum was stronger than at present and more plenty than alcohol; but now alcohol is the most plenty and much the strongest and cheapest. It should always be in the house (the 98 per cent), ready for use as described under the head of "Sweating with Burning Alcohol" (which see), or if it is daytime and fires are burning, you can give the vapor bath-sweat, by placing a pan, half or two-thirds full of water, under the chair, having a comforter around you; then putting into it occasionally a hot stone or brick until a free perspiration is produced and held for from 15 to 30 minutes, according to the severity of the case; and if this is commenced as soon as the attack is fairly settled upon the patient, in not more than one case out of ten will it be necessary to do anything more, but if fairly established, or if of a day or two's standing, then at the same time you are administering the sweat, place the patient's feet in water as hot as it can be borne; have also a strong tea made of equal parts of pleurisy root and catnip (this root is also called white root; doctors call it asclepias tuberosa); into a saucer of this hot tea put 2 teaspoons of the "Sweating Drops," drinking all at one time, repeating the dose every hour for 5 or 6 hours, using only 1 teaspoon of the drops at other times, except the first, giving the tea freely once or twice between doses. As soon as the sweating is over place the patient comfortably in bed so as to keep up the perspiration from 6 to 12 hours, or until the pain and uneasiness yield to the treatment. If necessary, after the patient takes the bed place bottles of hot water to the feet and along the sides, or hot bricks or stones wrapped with flannel wet with vinegar, to help keep up the perspiration. Mustard may also be placed over the seat of pain and upon the feet, also rubbing the arms and legs with dry flannel, which very much aids the process when the attack is severe. If the pain continues severe, and perspiration is hard to maintain, steep cayenne or common red peppers in spirits and rub the whole surface with it well and long, and I will assure the blood to come out soon and see what is going on externally. Keep the patient well covered all the time and avoid drafts of cold air. As the painful symptoms begin to subside the doses of medicine may be lessened, and the time between doses lengthened, until the disease is fairly under control; then administer a dose of the "Vegetable Physic," or some other cathartic, if preferred, or if that is not at hand this course may be repeated or modified to meet returning or changing symptoms.

Wetting the surface daily with alcohol and water, equal parts, will be found an excellent assistant in treating any disease, especially internal inflammations, as pleurisy, inflammation of the lungs, consumption, bronchitis, etc.

The pleurisy root is almost a specific in pleurisy or inflammation of the lungs; no other known root or herb is equal to it for producing and keeping up perspiration (druggists usually keep it), but if it cannot be got, pennyroyal, sage, etc., or one of the mints must be used in its place. The only objection to the foregoing treatment is this, the doctors say:

"Heigh! I guess he wasn't very sick;
For see! he's round in 'double quick;'
But alopath holds 'em for weeks, six or seven,
When bleeding, calomel and antimony are given."

To illustrate: I awoke one night with a severe pain in the left side (I had been exposed to cold during the afternoon) and could not move or draw a full breath without very much increasing the difficulty. The night was cold and fires all down. I studied my symptoms for a few minutes, and also reflected upon the length of time which must elapse if I waited for fires to be built, then awoke my wife, saying, "Do not be frightened. I have an attack of pleurisy. You will get me a comforter, saucer and the alcohol and return to bed without disturbing any one. With persuasion, or almost compulsion, she did so, for she desired to build a fire and make a more thorough work of it, but I had made up my mind and resolved to carry out the experiment upon myself, and now had the only chance. I arose and poured the saucer nearly full of alcohol, and set it on fire. Wrapping the comforter around me, I sat down upon the chair, over it, and continued to sit until the alcohol was all burned out, and I in a most profuse perspiration. The pain and difficult breathing had nearly all subsided. I then returned to bed, the perspiration continuing for some considerable longer by retaining the comforter around me to avoid checking it as I returned to bed, during which time I again fell asleep. When I awoke in the morning I could just realize a little pain, or rather uneasiness, upon taking a full breath, but did nothing more, being very careful about exposure, however, through the day, but at bed time I took another alcohol sweat, and that was the last of the pleurisy.

Again: Mr. ——, a medical student rooming in the same house where I lived, awoke in the night, attacked with pleurisy, the same as myself, after exposure, but as he was attending the lectures of alopathic professors, of course, he must have one of them to attend him. One was called, three pints of blood were taken, calomel and antimony were freely given, and in about three or four days the disease gave way to time, or the treatment, but a calomel-diarrhoea set in and came very near terminating his life and kept him from college and his studies over six weeks; and he said if he was ever calomelized again he would prosecute the doer to the end of his life. But he graduated in that school of medicine, and no doubt is now expecting to go and do the same thing. Choose ye your servant. Shall he be reason, with common-sense results, or shall he be silver-tipped fashion, with his health-destroying policy? It need not be argued that these were not parallel cases, for I had the pleurisy when young and was treated in the fashionable style, and was constantly liable to and had frequent attacks of it during my earlier life.

In chronic cases, which sometimes occur, and frequently under other treatment, it will be necessary, not only to use the foregoing treatment, but to add to it an emetic about once a week, alternating with the sweating process, with much external friction, occasionally with the pepper and spirits to hold the blood to the surface.

Since the first publication of the foregoing I have seen a statement going the rounds of the "papers" that a bad case of burning had taken place in New York by the alcohol process of sweating, calling it new; but it has been in use for more than forty years. I have used it, I speak safely, more than a hundred times, and never before heard of its injuring any one; but still it is possible that some accident may have occurred in its use, or that some one had undertaken it who was not capable of prescribing. But if calomel could claim one year's use under its most accomplished prescribers with only one case of injury I would say let it be continued. But in place of one, it is hundreds. Further comment is unnecessary.

But those who prefer, or from the absence of alcohol or other necessities, can take "grandmother's plan," i. e., place the feet into hot water and drink freely of pennyroyal, sage or other hot teas, for 15 to 20 minutes; then get into bed, continuing the teas for a short time, remaining in bed for a few hours, which if commenced soon after the attack of colds, or even more severe diseases, will in nine out of ten cases not only relieve but prevent days, perhaps weeks, of inconvenience and suffering.

Where there are complications with the substance of the lungs you will find explanations under the next head.

3. **Inflammation of the Lungs**—Is usually by physicians called pneumonia, from the Greek, Pneumon, the Lungs. It may involve the whole lung, on one or both sides, but is more generally confined to one side and to the lower portion than to the whole lung.

Causes.—Exposure to cold, wet, cold feet, drafts of air, especially if in a perspiration, recession of eruptive diseases, etc., and consequently more liable to come on in the winter or cold wet changes of spring than at any other time, and upon those whose lungs are debilitated by previous attacks, or are predisposed to or actually suffering under disease.

Symptoms.—Inflammation of the lungs, like other diseases of an inflammatory character, nearly always commences with a chill, soon followed by fever, more or less violent, according to which the severity of the case may be somewhat predetermined, unless of a congestive character; in which case, instead of a hot and fever surface there will be a cold, clammy feel to the hand, as well as unpleasant to the patient. There will be difficulty in taking full breaths, as well as an increased number of breaths to the minute, which in healthy persons is generally about 20. Dull pain, with a tightness of the chest, short and perpetual hacking cough, scanty expectoration, which is tough and sticks to the vessels used as a spittoon, and is more or less streaked with blood, or more like iron rust in color, and may have so much blood in it as to make it a brighter red The pulse is variable, so much so that but little confidence can be placed in it. The tongue soon becomes dry and dark, but a dry and glossy tongue, with early delirium, are considered dangerous symptoms—that is, under "old school treatment." But with our rational treatment we very seldom have a fatal termination, yet it is occasional, and really wonderful that it is not more frequent, when we take into account the neglect of some physicians and imprudence of many patients.

Indications.—As the blood has receded from the surface and centered upon the lungs, the indications are to return it to its original vessels, by judiciously applying heat and moisture, which is sure to relax their constringed condition, instead of cutting a hole and letting it run out (bleeding), which prostrates the patient and retards his recovery.

Treatment.—The treatment of Inflammation of the Lungs in recent cases will be at first the same as for "Pleurisy"—that is, to produce free perspiration—soak the feet in hot water while administering the "Alcohol Sweat" or Vapor Bath, as there directed, with the white root tea and "Sweating Drops," for several hours, with bottles of hot water or hot bricks to the feet and sides, mustard drafts to the feet also, as they can be borne; and after 6 or 8 hours the "Vegetable" or other cathartic should be administered, and great care not to expose the patient to drafts of air during its operation, especially if in perspiration. If this course is faithfully persevered in it will call the blood to the surface, prevent congestion of the lungs (unnatural accumulation of blood), lessen the fever, ease the pain and aid expectoration. But if the expectoration becomes difficult, and the disease should not seem to yield in from 8 to 12 hours at farthest, or by the time the cathartic has freely operated, then or soon after give the "Eclectic" or "Lobelia seed emetic," as directed under that head; and if called to a case which is already confirmed, it is best to begin with the emetic, then follow up as above directed in recent cases. An expectorant in confirmed (established) cases will be needed. Let it be composed of tincture of lobelia, 1 oz.; tincture of ipecac, ½ oz.; tincture of blood root, ¼ oz.; simple syrup or molasses, 2 ozs.; mix. **Dose**—One teaspoon every 2 hours, alternately with the white root tea and "Sweating Drops," except the first dose may be 2 teaspoons. The case must then be watched carefully, and any part or all of the treatment may be repeated, lessened, increased or modified to suit returning or remaining symptoms.

Persons having this book in the house, and being governed by it, having also the leading medicines on hand; and commencing with this disease or inflammation of any other organs, modifying the treatment by common sense, according to the remarks on "General Inflammation," will not have to repeat the course in one case out of ten.

In inflammations of the stomach, known by heat, according to the degree of the inflammation, drinks of slippery-elm water or mucilage of gum arabic, etc., may be freely taken, and in inflammation of other organs other modifications will be required. As for Dysentery, which is an inflammation of the large intestines, the "injection" must be freely used, as also the perspiring processes in all cases.

In chronic inflammation the emetic should be given once a week; and some other time during the week the sweating should be gone through also with dry frictions to the whole surface by means of a coarse towel, for 15 or 20 minutes each time, twice daily; and if the feet are habitually cold, wash them in cold water and wipe them dry at bedtime, then rub them with a coarse cloth or the dry hand until they are perfectly warm and comfortable, and it may be expected that these long standing cases will soon yield to this rational course.

Female Debility and Irregularities.—It is a self-evident fact that the finer the work and the more complicated a piece of machinery, the more liable it is to become deranged or out of order, and the more skillful must be the mechanic who undertakes to make any necessary repairs.

Upon this consideration I argue that the system of the female is the finer and more complicated, having to perform a double work (child-bearing), yet confined to the same or less dimensions than the male. And to perform this double function of sustaining her own life and giving life to her species, it becomes necessary in the wisdom of God to give her such a peculiar formation, that between the ages of fourteen and forty-five, or the child-bearing period, she should have a sanguineous (blood-like) monthly discharge from the organs of generation, known under the various names of monthly sickness, menses, catamenia, courses, menstruation, etc. Why it should have been so arranged, or necessary, none can tell. We are left to deal with the simple fact; and it would be just as wise in us to say that it was not so, as to say there was no one who planned it, or any other thing, because we cannot see and fully understand the great first cause. The blood discharged usually amounts to from four to six ounces, and should continue only from four to five days. And as this book will fall to very many families who will have no other medical work for reference upon this subject, it will not be amiss for me to give the necessary instructions here that all may be able to qualify themselves to meet the exigencies (demand) of all cases. Previous to menstruation, pain or uneasiness is felt in the back, loins, thighs, and a sense of heaviness in the womb, which lies in the lower part of the abdomen. Some are very nervous at these periods, others with flushed face, accompanied with dizziness and headache, sickness at the stomach, etc. In young girls these new feelings produce uneasiness, for want of knowledge as to their cause and result, and should lead them to seek maternal advice and council, unless they have some book of this kind which explains the whole matter. The breasts, at this period, enlarge and often become the seat of uneasiness, or actual pain. Let no real danger be apprehended; for these unpleasant sensations will continue until in healthy young females there will be a few drops of reddish fluid, resembling blood, pass from the genital organs, affording immediate relief, not from its quantity, but from the accomplishment of their natural work. Owing to their better general health, which is improved by the style of living, some girls menstruate a few months, or a year perhaps, earlier than others. When they take an active part in the labors of the house, freely romping, playing, etc., their health and strength becomes fully developed and menstruation comes on a little earlier, and is more healthy and regular.

Allow me here to give a word of caution about taking cold at this period. It is very dangerous. I knew a young girl, who had not been properly instructed by her mother upon this subject, to be so afraid or ashamed of being found with stains upon her clothes which she did not know the meaning of, that she went to a brook and washed herself and clothes—took cold and immediately became insane—remaining so as long as I knew her. Any mother who so neglects her duty to her child, in not explaining these things, is verily guilty.

After this discharge takes place, the unpleasant feelings usually subside, and the health again becomes good for the month, when all of the foregoing sensations recur again, with a larger flow and longer continued, recurring every four weeks, and is then called menses or monthly courses.

This function of the female system, from the fineness and complication of the structures is very liable to become deranged in various ways.

It may be entirely stopped, called amenorrhea (green sickness, suppression of the menses, &c.,)—it may become painful and imperfect (dysmenorrhea)—it may be very free or excessive (menorrhagia), like hemorrhage; or it may be irregular in its recurrence and duration (leucorrhea.)

But as this monthly discharge is absolutely necessary to health, between these periods of life—its suppression—painfulness, excessive flow, or irregularity, will soon produce general female debility.

Causes.—The female organism is such that what affects the general system of the male, much more frequently affects the organs peculiar to her system only. No reason can be given for it except the wisdom of the Creator, or the necessities of her construction. But this debility and irregularity are so interwoven that what causes one must necessarily affect the other.

In the good old grandmother days of girls helping with the work of the household, warm but loose clothing, plain food, good thick-soled shoes, and absence of novels to excite sexual thoughts, etc., such a thing as a feeble, debilitated woman or girl was hardly known; but now sedentary habits, stimulating food, every conceivable unphysiological style of dress, paper-soled shoes, checking perspiration, excitable reading, repeated colds by exposure going to and from parties thinly clad, standing out talking with supposed friends (real enemies) when they ought to be by the fire or in bed, masturbation, excessive co-habitation, miscarriages, &c., all tend to general debility; and the real wonder is that there are so few cases.

Symptoms.—The very word debility shows plainly the leading symptom, weakness. She appears pale, especially about the ears, lips, nose, etc., with a bluish circle about the eyes, which appear rather sunken from the fact that the countenance is generally bloated, leading her friends to feel not over-anxious about her, supposing her to be in good health, as she still appears in good flesh; but if you take hold of it, it will be found soft and flabby; she feels dull, languid, and drowsy, stomach out of order, nausea, often with fluttering about the heart; the nervous system sometimes becoming so much involved as to bring on fits of despondency leading many to attempt, and occasionally succeed in taking their own lives. The feet and limbs may become swollen, restless in sleep, often craving unnatural food, as clay, soft stones, tea-grounds, etc. There may be a discharge, from these organs, of a glairy or whitish fluid, resembling the white of an egg, the disease taking the name, in this complication of Whites, fluor albus or Leucorrhea, etc.; it is more common amongst married females, but often occurs before marriage. There may also be a sensation of bearing down, or even falling of the womb (prolapsus uteri) which is much the most common also amongst the married. The bowels usually costive, but often griping pains which cause much suffering. Pains may occasionally be experienced in the head and back; but instead of being looked upon as unfavorable, they rather show that nature is trying to bring about the natural discharge, and needs the assistance of rational remedies.

It is not to be supposed that every patient will experience all of these symptoms, at one, or all of the time; but they commence as pointed out, and if allowed to go on without proper correction, they will increase in severity until they may be all experienced in a greater or less degree.

Indications.—The symptoms indicate (point out) the treatment, that is, if there is debility, tonics are required; paleness shows that the blood has left the surface and must be brought back by heat, friction, etc. The softness of the flesh indicate a more nutritious diet. The dullness and drowsy languidness indicate active exercise. Stomach and heart indicate an alterative cathartic. The nerves require soothing and quieting remedies, travel, agreeable company, etc., to draw the mind away from self. The glairy mucus discharge, indicates an inflammation, and calls for washings of the parts by cooling and astringent injections, both as an act of cleanliness, as also of cure. The falling of the womb, points out the necessity of a pessary support, until the general treatment relieves the difficulty. Costiveness points out laxatives, while nature's efforts, shown by pains in the head, back, etc., clearly indicate the whole general remedies above pointed out; and which shall be a little more particularized in the following:

Treatment.—For the weakness and general debility of the patient, let the "Tonic Wine Tincture" be freely taken in connection with iron to strengthen and invigorate the system; beth-root (often called birth-root, Indian balm, ground lily, etc.,) the root is the part used, Solomon's seal and columbo, spikenard, comfrey, gentian, the roots, with camomile flowers, of each 1 oz.; with a little white oak bark, may be added to the wine tincture to adapt it to these particular cases, taking a wine-glass, if it can be borne, from 3 to 5 times daily. Domestic wine may be used in place of Port. The best way to take the iron is to have a foot or two of nail rod heat, then filled up, mixing with it as much ground ginger, rubbing them thoroughly together. **Dose**—Half of 1 teaspoon 3 times daily in a little honey or molasses, increasing or lessening the dose to produce a blackness of the stools; and continue these preparations for 2 or 3 months at least, or until well. Using for the paleness, warm bathing once or twice a week with dry hard rubbings of the whole surface, night and morning, which brings the blood to the surface, relieving the engorged internal organs. Moderate quantities of broiled pork, roast beef, mutton, etc., with cold bread and roast or baked potatoes, to overcome the softness of the flesh, and give strength for the necessary exercise which will remove the dullness and drowsy languid feelings. This exercise may be labor about the house, but better to be out of doors, as gardening, romping, swinging, singing and riding, or running when it can be borne, with agreeable company, travel, etc. For the stomach, heart, and costiveness, make the following:

2. **Female Laxative Pill.**—Aloes, macrotin, and cream of tartar, of each 2 drs.; podophylin 1 dr.; make into common sized pills by using oil of peppermint 15 to 20 drops and thick solution of gum mucilage. **Dose**—One pill at bedtime and sufficiently often to keep the bowels just in a solvent condition.

If the aloes should not agree with any, they may use the following:

3. **Female Laxative and Anodyne Pill.**—Macrotin and rhubarb, of each 10 grs.; extract of hyoscyamus, 10 grs.; Castile soap 40 grs.; scrape the soap and mix well together forming into common sized pills with gum solution. **Dose**—One pill as the other, or sufficiently often to keep the bowels solvent, but not too free. The hyoscyamus tends to quiet the nerves without constipating the bowels.

To soothe and quiet the nervous system and pains, if very violent, when the courses commence or during their progress, make the following:

4. **Pill for Painful Menstruation—Anodyne**—Extract of stramonium and sulphate of quinine, of each 16 grs.; macrotin,* 8 grs.; morphine, 1 gr.; make into 8 pills. **Dose**—One pill, repeating once or twice only, 40 to 50 minutes apart, if the pain does not subside before this time. The advantage of this pill is that costiveness is not increased, and pain must subside under its use.

5. **Tea—Injection for Leucorrhea.**—When the glairy mucus discharge is present, prepare a tea of hemlock, inner bark, and witch hazel (often called spotted alder) leaves and bark, have

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*Note.—Macrotin, podophylin, etc., are kept by all Eclectic Physicians.

a female syringe sufficiently large to fill the vagina; and inject the tea, twice daily, and occasionally, in bad cases, try twice a week, inject a syringe of the following:

6. **Injection for Chronic Female Complaints.**—White vitriol and sugar of lead, of each ⅛ oz.; common salt, loaf sugar, and pulverized alum, of each ½ dr.; soft water 1 pt. Simmer all over a slow fire for 10 or 15 minutes, when cool strain and bottle for use, keeping well corked. Inject as mentioned in the paragraph above, holding the syringe in place for a minute or two at least. This injection is valuable for C—p, with males, as also, for females.

7. In cases of falling of the womb; not only the cheapest, but the best pessary will be found to be a piece of fine, firm sponge, cut to proper size to admit, when damp, of being pressed up the vagina to hold the womb to its place. The sponge should have a stout piece of small cord sewed two or three times through its center, up and down, and left sufficiently long to allow of its being taken hold of to remove the sponge, once a day or every other day at farthest, for the purpose of washing, cleaning, and using the necessary injections; and this must be done while the patient is lying down to prevent the womb from again falling or prolapsing. After having injected some of the "Tea" as above, wet the sponge in the same and introduce it sufficiently high to hold the womb to its place.

But in the less complicated cases, when the pain in the head, back, loins, etc., indicate that nature is making an effort to bring on the courses; besides the tonic bitters, iron-filings, tepid bathing and friction, exercise, etc., the difficulty being more in the constringed condition of the vessels of these organs, I would say, a few days before the period when the menses should appear, have prepared and use the following:

8. **Chase's Tincture.**—Alcohol 1 pt.; red oxide of iron 1 oz.; oils of juniper and savin, of each ¼ oz.; oil of tansy, ⅛ oz.; tincture of ergot 3 drs.; tincture of Spanish flies ⅛ oz.; mix all and shake when taken. **Dose**—One teaspoon 3 times daily, to be taken in mucilage of slippery elm or gum arabic and drink freely of the mucilage also, through the day. Or the following:

9. **Chase's Pills.**—Precipitated carbonate of iron and gum myrrh, of each 2 drs.; aloes, and tincture of Spanish flies, of each 1 dr.; and oil of savin, ½ dr. All to be pulverized and made into 100 pills by using thick gum solution. **Dose**—One pill from 1 to 3 times daily, but not to move the bowels unpleasantly.

If the patient is troubled, in the least, with piles, the "Tincture" of the preceding recipe will be preferable; if not, the "Pill" is best.

One thing is very evident in these cases of debility; the blood is deficient in iron; consequently that article should enter largely into any medicine intended for its relief; and in most cases the iron-filings and ginger will be found, continued for two or three months, all the medicine required; and that must not be omitted, nor neglected, in any case whatever. Iron is the main-spoke in these female wheels, and very valuable in general debility of males as well as females.

For real hemorrhage, which may be known by the coagulation (clotting) of the blood, as the menstrual fluid does not coagulate but is absorbed into the clothes, see "Uterine Hemorrhage," or the "Styptic Balsam," but for profuse or long continued flowing or wasting, use the following:

10. **Powder for Excessive Flooding.**—Gums kino and catechu, of each 1 dr.; sugar of lead and alum, of each ½ dr.; pulverize all and thoroughly mix, then divide into 7 to 10 grain powders. **Dose**—One every 2 to 3 hours until checked, then less often, merely to control the flow.

If any female, into whose hands this book shall come, will carefully study and use the foregoing rational remarks and prescriptions, and is not an hundred times better pleased with the results than she would have been by calling half the physicians of the day, I should be very much disappointed, and I would be sure that the remedies did not have their common effects; which I feel will not be the case from the great good they have, many times, already done; besides, they save the delicacy of exposures, in many instances, and always save the delicacy of conversing with and explaining their various feelings and conditions, to one of the opposite sex. So highly important is this fact, and that the information should become general, every girl over thirteen years of age ought to be furnished with one of Dr. Chase's books.

APPENDIX TO MEDICAL DEPARTMENT.

BY THE PUBLISHER.

PAINLESS CHILDBIRTH.

Childbirth a Natural Function—The Use of Drugs—Exercise—Bathing—The Bowels—Sleeping—Clothing.

Motherhood, woman's highest prerogative, has become her greatest dread. This is unnatural. Nature in the formation of the female organism has made every provision for the bearing of children, so that the act is strictly a physiological one, and it should incur no more danger to life than the performance of any one of the other important functions of the body. That there must be discomfort is inevitable; for great changes cannot occur unnoticed and without disturbance; but that those changes can occur without pain and without danger has been abundantly proven by those who have strictly obeyed physiological laws during the months of pregnancy. It is those laws that we will mention and explain in this important chapter.

Many recognize the fact that the women of savage tribes are inconvenienced and retarded in their usual duties but a few hours by the birth of their children. If such untutored daughters of nature so well obey nature's laws by instinct, how much better should we, who can observe and learn from the highest intellectual standpoint, be able to avoid possible dangers.

The rules and suggestions we shall give upon this important subject of painless childbirth may be fully depended upon. Thousands of women have been saved needless agonies by their observance. If they are followed from the beginning of pregnancy till its ending, the ending need not be dreaded. If the prospective mother does not learn them in time to commence early, she may commence late and be proportionately relieved. These rules and laws are so plain that no one can fail to understand them, and they are so easily followed that no one need fail in their observance.

The Use of Drugs.

It is a frightful mistake for pregnant women to resort to the use of drugs to alleviate every ache and pain that may occur. Great damage may be done by such a practice. If there is any effect produced by drugs, it is produced by affecting the nervous system or bringing about extraordinary efforts in the various organs acted upon. We want natural and not unnatural actions if we are to maintain perfect health.

It is a common practice for women to use some one of the various "headache cures" or "neuralgia cures" to relieve their uncomfortable feelings. All such preparations produce their effects by stunning the nerves and making them insensible to pain. Is that what we want when we are striving to build up the nerves for the strain that must be put upon them? Far from it. Avoid such paralyzing preparations; they are delusive and will render your nervous system weak when the time of trial arrives.

As for the use of narcotics, too often resorted to, there is no excuse except a reckless willingness to directly injure the nerves for the sake of relieving unpleasant feelings that could have been more easily relieved by common sense methods. Laudanum, morphine, paragoric and similar narcotics must be avoided, as they are certain to weaken the nerves and increase the pain and cause danger at childbirth. In fact, women who have accustomed themselves to such drugs during pregnancy cannot fail to experience great suffering during labor.

Another common habit which must be avoided is the use of soda or magnesia to correct stomach disorders that may arise. These clog up the stomach and intestines and form products that are harmful, much as they may give relief by neutralizing the acid condition of the stomach. Observe the rules for eating and exercise given elsewhere, and these stomach derangements will give very little trouble.

You may be advised to take a little "nux" as a tonic. Don't do it. That is simply the tincture of the plant from which the deadly strychnine is prepared. It is an irritating poison and will render your sensitive nerves far more sensitive. The only way in which it stimulates the nerves is by irritating them by its poisonous action.

As for the various proprietary medicines placed upon the market, with descriptions of their wonderful virtues, we would say, beware of them. They may presumably be offered "for the sake of suffering humanity," but in reality they are offered as a means of filling the manufacturers' pockets. Some of them do give relief, but in nearly every instance they give it through the use of the very drugs you wish to avoid.

If disturbances are of such a nature as to absolutely demand treatment, let the medicines employed be true remedies, harmless agents that cannot paralyze nerves or destroy structures. These are recommended in the chapters on disorders during pregnancy.

Exercise.

No woman can expect to have an easy labor if she fails to take plenty of systematic and healthy exercise. The blood must circulate throughout the body with natural activity and the muscles must keep firm and supple. Exercise alone can accomplish these things.

Walking, within reasonable bounds, is the most healthful form of exercise a pregnant woman can enjoy. It brings into play all the muscles of the lower extremities and develops the abdominal muscles and the pelvis and puts the ligaments in a condition to respond without difficulty to the requirements of labor. It gives firmness to the muscles throughout the body. It helps the chest in expansion, allowing plenty of air to enter the lungs, which purifies the blood. It arouses and maintains the circulation, keeping the blood active and preventing sluggishness.

Open air exercise is always the best, and a walk each day throughout gestation is simply invaluable. Commence walking early and keep it up as long as possible. Be systematic in this, and if you started daily walks in the beginning of pregnancy, you can continue them and enjoy them until the day of confinement.

It may be that you have not thought of this until pregnancy is far advanced. Well, then, commence walking when you do realize the benefit to be derived from it. Of course, if you commence during the sixth or seventh month the walk cannot be as long at any one time without becoming tiresome. Then walk in moderation. If you cannot get outdoors to walk, then walk back and forth across your room. Don't be afraid of being on your feet too much while taking this exercise. Riding is not as good as walking, but it is better than staying indoors. It rests the mind and gives fresh air, and the motion of the carriage affords a limited amount of exercise. During and after the seventh month there is a certain risk connected with carriage riding. The jolting of the vehicle not infrequently places the child in a wrong position, or possibly causes the cord to get tangled about its neck. Where the roads are perfectly smooth and there is no probability of jarring and jolting, riding may be indulged in until the last day; but it cannot take the place of the daily walk.

The performance of household duties during pregnancy is always of advantage. The woman who secures extra help about the house, so that she can take it easy, will surely be far from having an easy labor. Housework is especially valuable because it keeps the mind occupied as well as the hands. Of course, excessive work is never good; it strains the muscles and weakens the nervous system. But any work that a woman ordinarily performs she can perform during gestation.

In every form of exercise the breathing should be deep and regular. This requires the clothing to be loose about the body and that the mouth be kept closed as much as possible when not talking or eating.

It is healthful, non-fatiguing exercise that aids in keeping the secretions active, the lungs strong, the muscles firm and pliant and the whole body vigorous. The peasants of European countries who are accustomed to working in the field rarely experience any trouble in childbirth; but their American sisters, who regard pregnancy as a disease, and during the full nine months pamper themselves and lead lives of indolence, are the ones who dread childbirth instead of hailing it with delight.

Bathing.

No one can expect to maintain health without frequent bathing, and to the expectant mother it becomes an absolute necessity. It is true that not many years ago all the old-style nurses and grandmothers used to believe that bathing should be prohibited for several months before confinement. But, like a great many other notions so long adhered to, this one was wholly without foundation; and practical common sense has shown it to be worse than folly.

There are many millions of pores in the skin through which impurities escape from the body, and when these pores are closed or partially obstructed, the impurities are absorbed and carried about with the blood to every part of the body and to the unborn child itself—doing damage and making trouble everywhere.

A great aid toward insuring painless childbirth is to keep the skin in healthy action. Bathe, not merely for cleanliness, but as a means for securing the removal of impurities through the exits nature has provided. During pregnancy there is more than the usual amount of effete material to find its exit through the skin.

But to what extent must bathing be indulged in? Persons who have been accustomed to daily baths can, of course, indulge in them more freely than others. Under no circumstances should such persons discontinue the habit on account of pregnancy; rather should they be more free in the use of water.

First of all, provide a suitable tub for bathing . Every house should have one; but many houses have none. If you have not a stationary tub, a couple of dollars will buy a tin one of good size. If you cannot afford this, then an ordinary washtub must answer. Several kinds of baths may be mentioned.

Cold Bath.—A great many persons accustom themselves to a cold bath every morning. This is good; but a pregnant woman not used to it cannot suddenly commence the habit. It is best to commence gradually by sponging the body rapidly, a small portion at a time, and dry thoroughly before sponging another portion. Commence with lukewarm water, and each morning use water a little cooler than was used the preceding morning; until real cold water can be used. Do not take such a bath in a cold room, and always be sure to dry thoroughly. Five minutes' time will suffice to take a cold sponge bath. It may seem a little chilly at first, but a reaction sets in almost immediately and a pleasant glow is felt all over the body. It is tonic and invigorating. Do not get into a tub of cold water, as so many imagine a cold bath implies. That might chill the surface so extensively as to retard a reaction. Only the most robust can stand such a bath; but the most delicate can soon become accustomed to the daily rapid sponging with cold water.

Sitz Bath.—This is a method of soaking the lower part of the trunk of the body in warm water, or water as hot as it can be borne. There are regular tubs constructed for this purpose which are not expensive; but an ordinary washtub may be used. Tilt the tub a little and partially fill it with warm water. Sit in the tub and have the feet outside placed in an ordinary foot bath of hot water. Take care to have the body well covered with a blanket; for drafts of air or chilliness of the exposed portions of the body are not to be desired. From ten to twenty minutes may be consumed in taking an ordinary sitz bath. Always add an extra amount of hot water just before leaving the tub.

Sitz baths are most excellent for relieving the sense of weight and pain so often experienced in the pelvis. They loosen out the muscles and soothe the lower nerves and make the ligaments more pliable, so that during labor there will be no rigidity of structures to overcome. Some persons declare that daily sitz baths during pregnancy constitute the whole secret of painless childbirth. Many take the cold sponge bath in the morning and the sitz bath at bedtime. This is an excellent plan and, in conjunction with other directions given in this chapter, cannot help but insure a practically painless childbirth where no deformities exist.

For constipation, muscular soreness of the abdomen, pains in the hip joints and other discomforts in the pelvic region, the sitz baths will be found invaluable. They may be taken without any risk whatever.

Hot Vapor Bath.—When there is inaction of the skin, which sometimes becomes almost leathery, nothing will so quickly restore it to its natural condition as a hot vapor bath. And when there is crowding of blood upon the internal organs, such a bath will be found beneficial.

An apparatus for taking a vapor bath can now be secured almost anywhere for a very small sum of money; or one will be sent by express to any part of the country by firms that manufacture them in almost every large city. The great benefit to be derived from the use of hot vapor baths or a "steam bath" is recognized now by people in general and all classes of physicians, and no hospital is considered complete without its arrangements for giving them; though it is but a few years ago that the physicians who first introduced them into general practice, were ridiculed for using them and attempts were made to invoke the law against their employment.

Among the Russians and Turks these baths have long been used; and their scientific application in the treatment of disease, as originated by the Physio-Medical physicians, has been one of the greatest blessings to the afflicted.

Where no cabinet or canvas vapor bath apparatus is to be had the bath can be taken as follows: Have the bather remove all clothing and sit upon a perforated chair, adjusting a large blanket about the body in such a way as to fit snugly about the neck and spread out as much as possible on the floor. Place behind the chair under the blanket an iron or earthen cup containing about half an ordinary teacupful of alcohol. Light this alcohol and let it burn up completely. If the head feels hot, place upon it a towel wet with cold water. If there is faintness, give a little hot ginger tea to drink. It will take about twenty minutes for the amount of alcohol mentioned to burn. Weak persons should not remain in the bath half that length of time. If the skin is dry, it will be found best to place over the cup of burning alcohol a pan of hot water so that as it boils the steam will envelop the body.

You will be surprised to see the amount of bad material that can be taken from the skin by such a bath. It opens out all the pores and starts perspiration that is of great benefit. Of course, such baths need not be taken frequently. It is of great service when a severe cold has been taken and serious trouble is threatened. Many severe spells of sickness have been averted by the timely use of the vapor bath.

Immediately after the bath rub the body thoroughly with a rough towel until the whole surface is red and then use cocoanut oil, working it into the skin on every part of the body, and giving an extra portion to the lower part of the abdomen. This will give a wonderful sense of relief to women who "feel as though the skin would burst." And here it may be mentioned that cocoanut oil is the best oil that can be used for anointing purposes. It is quickly absorbed and nourishes the skin and is even taken up as a nourishment for the body, life being often maintained by rubbing over the abdomen, after the stomach has absolutely refused to retain food.

REGULATING THE BOWELS.

You can't expect to keep your body in a natural condition unless you pay strict attention to the regularity of the bowels. When the waste material is allowed to accumulate in the rectum, evil results are sure to follow. The putrescent gases and decomposing fluids will be absorbed and do great damage. Notice how dry and hard the discharges are when the bowels have not moved for two or three days. What has become of the fluid constituents that render the natural passages soft? They have simply been absorbed and carried around in the circulation to poison every structure they come in contact with. This is plain, common sense to every one who will stop to reflect a moment.

Can you expect to have your unborn child thrive and develop naturally when the blood you have poisoned enters into its circulation and is the only nourishment that it is possible for it to secure? Can you expect your own tissues to remain in the necessary condition of health while your blood is thus poisoned? Poisons of this nature always bring about one of two effects. They either irritate and cause inflammation or they stupefy the nerves by their depressant characteristics.

But there are other results of a mechanical nature that are certain to follow retention of effete material in the rectum. By reference to the plate of the organs of the body, it will be seen that the rectum is very close to the uterus or womb; and whenever the rectum is distended pressure must be necessarily made against the womb and other pelvic organs.

How can you expect to have freedom for expansion and development of the womb with a crowded rectum pressing against it? Under such circumstances the symmetry of the womb is impaired and at childbirth, when the contractions of the womb should be regular, we will find that they are irregular, causing great pain and straining and delays that could have been avoided by forethought and attention to securing regularity of the bowels during the months of pregnancy.

Then there is another important matter in this connection. Whenever there is pressure upon the veins they become distended, because the proper flow of blood cannot be maintained through them. Overcrowding and distension of the rectum causes pressure against the adjacent veins, bringing about accumulations of blood that cause pain, often of a "dagger-like" character, about the anus during labor. This distension of the veins in these parts also softens the small blood vessels and tissues and renders hemorrhages and tearing far more likely to occur.

Again, there can be no continued pressure against the nerves in any part of the body without the nerves themselves becoming affected. As the uterus expands during pregnancy, natural provision is made for the effect of this expansion upon the nerves. Peculiar and uneasy sensations must be expected while these changes are going on; but pain of an intense character is experienced only when some unnatural pressure against the nerves is being exerted.

A crowded rectum must press against the nerves close by, and those nerves must be weakened by this continued pressure. Is it not plain that weakened nerves cause great pain when they are subjected to strains? And is it not plain that when the hour of childbirth arrives, the strain of the labor will be made more intense by the nerves being weakened in consequence of previous pressure having been made upon them by the crowding of the rectum during the months of pregnancy?

You cannot fail to realize, by recounting the above mentioned facts, that constipation is a prolific source of agony during childbirth; and that free and regular, daily or twice daily movements of the bowels, during pregnancy, will work wonders in aid of bringing about painless childbirth. Knowing these things you will be able to avoid much of the misery experienced by mothers who were not fortunate enough to realize their importance. Many will tell you that you must expect to suffer from constipation during pregnancy, and the same persons will also tell you that you must expect to suffer excruciating agony at the time of childbirth. But you need not expect anything of the kind. It is true that there is always a tendency to constipation as the womb enlarges and presses against the rectum; and this tendency must be guarded against.

Keep the bowels free and regular in their performance of functions; and do it physiologically, so that their action will be natural. Nature cannot be trifled with or forced during pregnancy if you wish to experience painless childbirth. Leave alone harsh cathartics, aloes, mandrake, salts, cathartic pills and the like. These things irritate the bowels and irritate the pelvic nerves and all irritations must be avoided.

Eat such foods as have a tendency to keep the bowels open; they are mentioned under the heading of "What to Eat." Drink plenty of water. If there is constipation in spite of regular habits and proper eating, it must not be allowed to continue. The bowels must move every day, without fail. Visit the closet at a certain time each day and make a reasonable effort, without severe straining, to secure a passage from the bowels. If they simply will not move then inject into the rectum a pint or more of warm water and retain it as long as it can be held. If this does not secure an evacuation, repeat the injection and put a teaspoonful of sugar in the water. Don't be afraid to use these injections. They cannot do you any harm, but they can do you a great deal of good.

An important fact in connection with this matter is regularity. Giving the bowels opportunity, at the same hour each day, to move and compelling movement at that time, by using injections if they do not act naturally, will soon accustom the bowels to naturally move at that same hour each day. Let nothing come in to interfere with this regularity. Don't let the time vary fifteen minutes.

Such regularity not only keeps the rectum sufficiently free of effete material, but it gives a rhythm of action to the pelvic muscles which is valuable. Of all aids to painless childbirth, regular and even efforts at uterine contraction are among the most valuable.

If internal remedies must be used to clear the intestinal tract, let them be simple. A teaspoonful of cascara aromatic (to be had at any drug store) or two grains of leptandrin (if the liver is at fault) taken in a capsule at bedtime, will never fail to act promptly and mildly, taken along with the observance of the other methods given.

Sleeping.

Fully one-third of the time should be devoted to sleep—good, restful sleep. The changes that are taking place in the body mean extra work throughout the organism, and extra work means strain upon the nervous system. This strain requires regular periods of rest of sufficient duration to allow the system to regain perfect repose and equilibrium.

When you go to bed, go there to sleep and for nothing else. Don't lie there and think of all the tribulations of the day and of the expected troubles of the morrow. Let such things take care of themselves. Don't count sheep jumping over a fence till you fall asleep mentally exhausted, and above all don't take narcotics to bring on false sleep.

Make up your mind that bedtime means time for going to sleep and by will-power put yourself to sleep. You can do this. Simply stop thinking, close your eyes and make your mind a blank. Render yourself happily oblivious of all your surroundings and worriments. It may take a little practice to do this, but you can accomplish your purpose, so that as soon as your head touches the pillow you will realize the soothing influence of restful sleep coming over you. It is such sleep that gives perfect repose. This habit of controlling the nerves is simply invaluable to the prospective mother. It gives her a power over herself that can be used to the greatest advantage in the hour of childbirth. At that time random efforts and an uncontrollable mind means pain and delay. We have seen women in childbirth who had practiced control of themselves in the matter of sleep, and between the efforts of labor they were enabled to take short and refreshing naps. Not the sleep of exhaustion, but the natural sleep that soothes the nerves and strengthens the body. Such women have "an easy labor" and are soon through the "ordeal" and "get up" without any sense of fatigue. By all means accustom yourself to going to sleep when you go to bed.

In some cases the hours of sleep at night may not afford sufficient rest; then take a nap during the day time. But always make your hours of retiring and rising systematic and take your nap at a certain time each afternoon. As in everything else, regularity of sleep is important.

Don't oversleep. Some pregnant women make it a habit to lie in bed half the morning. That is a mistake. The old maxim holds good, "early to bed and early to rise." Too much sleep softens the muscles and enervates the system and takes away the vigor of the body. The sleep of indolence is never refreshing.

Don't sleep on feathers. They overheat the body and take away the essential elasticity of the skin. They are debilitating and will deprive the muscles of that firmness which helps the speedy accomplishment of labor. A good new hair mattress well aired every day makes the best bed for any one.

Avoid covering that is too heavy. Sleeping between blankets gives warmth without too much weight to burden the body.

Have the sleeping room well aired during the day and well ventilated at night; but never sleep in a draft. Don't darken the room while it is possible for daylight to enter, and never sleep in a room that cannot get a good share of sunshine directly into it.

Sunlight is necessary to purify the air and pure air is essential for the purification of the body. If some other member of the family has a better room to sleep in than your own, manage to take that room and let the other member take yours. You must do everything in your power for the well-being of your coming child; and if you are to experience a painless childbirth you must do everything that will put your body in as natural a condition as possible. Good sleep, on a proper bed, in a clean room, well ventilated and purified by sunlight will give strength to the nerves and body, remove impurities and purify and enrich the blood.

Clothing.

The prospective mother who desires a painless childbirth must be sensible about her clothing. Make no attempt to alter the form by tight-fitting clothes and corsets and compressors. Such a practice means future trouble when you least desire it.

We have seen women in torture during labor whom we knew brought about their sufferings almost entirely by their efforts to "hide themselves." No greater error was ever made by pregnant women. A woman who compresses her abdomen or pinches her ribs during the period of gestation will inevitably suffer.

There are loosely flowing gowns and dresses that can be worn most appropriately. These will leave the body perfect freedom for development and present no unsightly appearance. A little ingenuity and little extra expense will enable a woman of tact to contrive methods of dressing well that will not interfere with her condition.

Dress comfortably. If in summer, too warm clothing will prove uncomfortable and weakening and keep the tissues too relaxed, so that the muscular efforts during labor will not be strong enough, and expulsion will be delayed. If in winter, keep warm. If any part of the body is chilled the blood is driven from that part to the most sensitive of the internal organs. During pregnancy the womb and its appendages, with their crowded and dilated blood vessels are most sensitive; so that at that time chilling of the surface will prove injurious to the mother and weaken the pelvic organs and pave the way for pain and delay at childbirth.

Keep the feet and lower limbs especially warm. Cold and damp feet must not be thought of. Never mind how clumsy the shoes may look, have them with thick soles and well protected uppers, and always wear stockings that will keep the legs warm and protected against drafts.

Don't make the waist-bands of skirts and dresses tight, no matter how inconvenient you may imagine suspenders may be. A constriction about the waist means just so much more of future pain and discomfort. Contrive some means of holding up the skirts and other garments otherwise than by bands.

Some women invariably wear flannel next to the skin during pregnancy. This is a good plan for those who can stand it. But all persons cannot do so. With some the itching caused by flannel underclothes worn next to the skin is unendurable. If the season is cold woolen underclothes should be worn, even if thin linen garments are necessary underneath them.

The endeavor must always be to keep the surface of the body from being chilled and to equalize the circulation of blood everywhere. Do not let too much blood flow to the head and upper part of the body while the feet and lower extremities are cold. In windy weather be sure that the head is sufficiently covered to keep drafts from blowing over the ears and neck so as to avoid neuralgia. A woman who suffers from neuralgia during gestation is liable to have a painful labor.

Adapt the clothing, not only to the season, but to the changes of the weather and the time of day or night. It may be troublesome to change the clothes frequently or to put on an extra wrap or a heavier cloak just to run across the street or to do some out-door errand; but it will pay you to do so. These little things properly observed, will help you in the time of trial.

Never let the following of fashion lead you into trouble, and do not permit false modesty to tempt you to do those things which you know to be injurious. Think of your own welfare first and appearances afterward.

CARE OF THE SKIN.

BY THE PUBLISHER.

The function of the skin has already been explained, while the importance of keeping it clean and in a healthy condition, as an Element of Female Beauty, has likewise been demonstrated. It will accordingly only be necessary in this chapter to present some of the best cosmetics used in fashionable and refined society for preserving and beautifying the skin.

As I have already intimated, a bright, clear complexion is only to be acquired by three things—temperance, exercise, and cleanliness. If these are not maintained, all the cosmetics in the world will be of no avail whatever. Were a young lady as fair as Hebe or charming as Venus, she will speedily mar the most exquisite and voluptuous loveliness by too high living and late hours. As to diet—strong coffee, hot cakes and butter; rich peppered soups; fish; sweetmeats, etc., have destroyed many a constitution, driven the roses from the cheeks and suffused the countenance with a saffron or bilious hue. There are a great many disorders induced by ignorance, as connected with fashion and habit. Besides these, the frequent changes of the weather, or the sudden transition from cold to heat, and heat to cold, have a sad effect upon the skin, roughening its texture, injuring its hue and deforming it with unseemly eruptions. The head and face, especially, need protection from the atmosphere. Nor should any lady ever go out into the hot sun without her veil, or without her having her head properly covered. Going out in the autumnal evening without a sufficient covering to the head, particularly, is exceedingly detrimental to the beauty of complexion. The custom of drying the perspiration from the face by powdering it, or cooling it when hot from exposure to sun or dancing, by washing with cold water, is most destructive to the softness and brilliancy of the complexion. The exercise of a little judgment would teach every lady that when she is over-heated, she ought to permit herself to cool gradually, and by all means to avoid going into the air, or allowing a draught through an open window or door to blow upon her when thus heated. Excessive heat is as bad as excessive cold for the complexion. In the dingy face of the desert-wandering gypsy may be seen the effects of exposure to alternate heats and colds. Let all young women, especially, attend to the few rules we have already laid down, and each will then be able to retain her health and beauty to the latest period of life.

GENERAL RECIPES.

No. 1. Wash for the Skin and Complexion.

To remedy the rigidity of the muscles of the face, and to cure any roughness induced by daily exposure, the following wash may be applied, with almost certain relief, as we are assured by Madame Lola Montes, the celebrated Countess of Landsfelt.

Mix two pints of white brandy with one part of rose water, and wash the face with it, night and morning.

The brandy keeps up a gentle action of the skin, which is so essential to its healthy appearance; also thoroughly cleanses its surface, while the rose-water counteracts the drying nature of the brandy, and leaves the skin in a natural, soft and flexible state.

No. 2. Complexion Paste.—The following is the recipe for the paste, by the use of which Madame Vestris is said to have preserved her beauty till very late in life. It is applied to the face on retiring for the night.

The white of four eggs boiled in rose water, half an ounce of alum, half an ounce of oil of sweet almonds, beat the whole together till it assumes the consistence of a paste.

No. 3. A "Remarkable Wash," said to have been used by the Beauties of the Court of Charles II., is made of a simple tincture of benzoin precipitated in water. We quote:

"This delightful wash seems to have the effect of calling the purple stream of the blood to the external fibres of the face, and gives the cheeks a beautiful rosy color. If left on the face to dry, it will render the skin clear and brilliant. It is an excellent remedy for spots, freckles, pimples and eruptions, if they have not been of long standing."

No. 4. To Remove Pimples.—There are many kinds of pimples, some of which partake almost of the nature of ulcers, which require medical treatment, but the small red pimple, which is most common, may be removed by applying the following twice a day:

Sulphur water	1 ounce
Acetated liquor of ammonia	¼ "
Solution of potassa	¼ "
White-wine vinegar	2 "
Distilled water	2 "

These pimples are sometimes cured by frequent washing in warm water and prolonged friction with a coarse towel. The cause of these pimples is obstruction of the skin and imperfect circulation.

No. 5. To Remove "Fleshworms".—Sometimes little black specks appear about the base of the nose, or on the forehead, or in the hollow of the chin, which are called "fleshworms;" are occasioned bv coagulated secretion that obstructs the pores of the skin. They may be squeezed out by gentle pressing. They are permanently removed by washing with warm water, and severe friction with a towel, and then applying a little of the following preparation:

Liquor of potassa	1	ounce
Cologne	2	"
White brandy	4	"

The warm water and friction alone are sometimes sufficient.

No. 6. Queen Bess's Complexion Wash.—The following recipe has been handed down from the time of Queen Elizabeth. Its daily use preserved the beauty of her complexion to extreme old age.

Into a phial place one drachm of Benzoin gum in powder, the same quantity of grated nutmeg, and about six drops of the essence of orange blossoms; then fill up the bottle with a wineglassful of the finest sherry. Shake the ingredients every day for a week, then mix the whole with a pint of orange-flower water; strain through fine muslin, and the "Lait Virginal" is finished. The face is to be bathed with it night and morning.

No. 7. An Excellent Cosmetic.—Take of blanched bitter almonds, two ounces; blanched sweet almonds, one ounce; beat to a paste, add distilled water, one quart; mix well, strain, put into a bottle, add boric acid in powder, twenty grains, dissolve in two tablespoonfuls of spirits of wine, and shake well. Used to impart a delightful softness to the skin, and also as a wash for obstinate eruptive diseases. Wet the skin with it, either by means of the corner of a napkin, or the fingers dipped into it, and then gently wipe off with a dry cloth.

No. 8. Lavender Water of a very excellent quality may be prepared thus:—Rectified spirit, two quarts; rose water, one pint; English oil of lavender, one ounce and a half; oil of cloves, half a drachm. Mix and distill the whole together so long as it comes over bright.

No. 9. Elder-Flower Water is frequently found serviceable in producing that enviable softness of the skin which the ladies so much admire; but the best way to begin is to attack the enemy in his strongest fortress, the stomach. While trying cosmetics, it is an excellent plan to purify the blood with some gentle asperient; and the following simple preparation, which may be taken all through the spring, summer and autumn, will be found highly advantageous: Put two ounces of Epsom salts, half an ounce of cream of tartar, and the half of a rind of lemon, into a quart of boiling water. When cold, decant it into a bottle, cork it close, and take a wineglassful every morning before breakfast. It will remove giddiness and headaches, besides operating as an admirable purifier.—Elixir of Beauty.

No. 10. Freckles.—Freckles are situated in the middle and outer membrane of the skin; and before any other application, it will be advisable to soften the surface by the use of some mild balsam or paste. The following is an excellent preparation: Two ounces of fine honey, one ounce of purified wax, half an ounce of silver litharge, half an ounce of myrrh. Mix them well together over a slow fire, perfuming with oil of roses, eau-de-cologne, or any other agreeable perfume. Another: One ounce of bitter almonds, one ounce of barley-flour, mix a sufficient quantity of honey to make the whole into a smooth paste;

with which the face, more particularly where the freckles are visible, is to be anointed at night, and the paste washed off in the morning.

No. 11. Freckle Paste.—The following is a good application, the surface of the skin having been previously softened by a little mild balsam or emolient paste:

One ounce of bitter almonds; one ounce of barley flour. Mix with a sufficient quantity of honey to make the whole into a smooth paste, with which the face, particularly where the freckles appear, is to be anointed at night, and the paste washed off in the morning.

No. 12. For a Wash for Freckles, Tan, Etc.—Take two ounces of lemon juice, half a drachm of powdered borax, and one drachm of sugar. Mix them together and let them stand a few days in a glass bottle till the liquor is fit for use; rub it on the hands and face two or three times a day.

No. 13. Freckle Compound.—The so-called "Unction de Maintenon," after the celebrated Madame de Maintenon, mistress and wife of Louis XIV., is made as follows:

Venice soap	1 ounce
Lemon juice	½ "
Oil of bitter almonds	¼ "
Deliquidated oil of tartar	¼ "
Oil of rhodium	3 drops

No. 14. Freckle Wash.—One drachm of muriatic acid; half pint of rain water; half teaspoonful of spirit lavender. Mix them well together, and apply two or three times a day to the freckles, with a camel's-hair brush.

No. 15. Lemon Cream for Sunburns, Etc.—Put two spoonsful of fresh cream into half a pint of new milk; squeeze into it the juice of a lemon, and half a glass of brandy, a little alum and loaf sugar; boil the whole, skim it well, and when cool it is fit for use.

No. 16. Preventive Wash for Sunburn.—Two drachms of borax; one drachm of Roman alum; one drachm of camphor; half ounce of sugar, one pound of ox-gall. Mix and stir well together, and repeat the stirring three or four times a day, until the mixture becomes transparent. Then strain it through filtering paper, and it is fit for use.

CARE OF THE AGED.

BY THE PUBLISHER.

In olden times the alchemists claimed to have discovered the elixir of life. They said that old age might be retarded and life greatly prolonged by means of an elixir having the power of preventing or suspending physical decay.

The possibility of prolonging life has in all ages been noticed by great thinkers.

The latest scientific knowledge in regard to this subject may be stated as follows: The principal characteristics of old age, as demonstrated by anatomical research, are a deposition of fibrinous, gelatinous and earthy material in the system. Every organ of the body, during old age, is especially prone to ossific deposits. The earthy deposits have been found to consist primarily of phosphates and carbonates of lime combined with other calcareous salts.

Man begins in a gelatinous and ends in an osseous or bony condition. From the cradle to the grave a gradual process of ossification is undoubtedly present; but after passing middle age the ossific tendency becomes more markedly developed until it finally ushers in senile decrepitude. These earthy deposits during old age materially interfere with the due performance of function by the organs; hence, we find imperfect circulation in the aged; the heart gradually becomes ossified; the large blood-vessels blocked up with calcareous matter, and nutrition hindered.

"If repair was always equal to waste, life would only terminate by accident." It is the opinion of eminent scientists that the majority of all who pass sixty-five years suffer more or less from these ossific deposits. Therefore, bearing these facts in mind, it is plain that the real change which produces old age is, in truth, nothing more or less than a slow but steady accumulation of calcareous matter throughout the system; and it is owing to these deposits that the structure of every organ is altered, elasticity thus giving way to senile rigidity. Blockage of various organs is thus commenced, and sooner or later a vital part becomes involved, and death of necessity follows. The idea that old age was brought about simply, or at all, by a decline of the vital principle, has long since been discarded by scientists, and the true cause found to be that of gradual disintegration of the tissues because of the inadequate supply of blood.

The feebleness of old age, therefore, being due to nothing more nor less than ossific deposits, it is well for a moment to look for the causes and influences leading to the condition described.

The Causes of Old Age and Their Avoidance.

The two principal causes of old age are, first, fibrinous and gelatinous substances; and second, calcareous deposits. According to recent researches, the origin of the first, the fibrinous and gelatinous, may undoubtedly be traced to the destruction of atmospheric oxygen.

Although unquestionably fibrin nourishes the organs of our body, yet it becomes at times, as we reach the cool and shady walks in the evening of life, accumulated in redundant quantity, blockading the streams of life as do the chilling winds of winter the mountain rivulets.

The calcareous deposits are proved to be caused by gradual deposition from the water which forms so large a part (70 per cent) of the human system, and to be introduced by means of food.

As a matter of fact, everything we eat does contain these calcareous matters to a greater or less degree. The cereals are found most rich in them; so bread itself, the so-called staff of life, except in great moderation, most assuredly favors the deposition of these salts in the system. The more nitrogenous our food, the greater its percentage of calcareous matter; thus a diet composed principally of fruit, from its lack of nitrogen, is best adapted for preventing or suspending ossification.

Moderation in eating, then, must ever be of great value as an agent for retarding the advent of senile decay. Large eaters more rapidly bring on ossific deposits by taking in more than is utilized or excreted, naturally resulting in blockading the vessels and destroying their normal functions. According to the best authorities, the following seem to be the best articles of food as containing the least of earthy salts: Fruit, fish, poultry, flesh of young mutton or beef; because, as before stated, they are much less nitrogenous. Fluids, as part of the diet, is of special import. All well and spring water contains considerable of the earthy salts, and should, therefore, be avoided, and cistern water used in its stead, because water is the most universal solvent known. Therefore, if when taken into the system clear of foreign matter, it is to that extent the better prepared to dissolve and take up those earthy salts and convey them out of the system. The addition of fifteen or twenty drops of dilute phosphoric acid to the glass of water, and drunk three times a day, will add to the solubility of these earthy salts.

Rules for the Care of the Aged.

1. The aged should not endeavor to perform the feats of agility, strength, endurance and "of digestion," which were once their pride, especially during the extreme heat of summer.

2. The aged should avoid torpor of the bowels and constipation. Straining at stool may cause apoplexy.

3. Do not give up all mental and bodily work.

4. In the chill of any evening, or of early autumn, the aged need fire. Many an otherwise long life is cut short from neglect of this rule, by an attack of some form of lung inflammation.

5. Life can be prolonged, without a doubt, by a proper change of climate and of scene. The flickering flame of life can be protected from going out by a careful hand.

6. All warnings of weakness, or on-coming sickness, or decay, should at once be noticed by the aged, and due precaution and proper treatment instituted at once.

THE CARE OF THE EYES, EARS, SKIN, TEETH, MOUTH, HANDS AND FEET.

BY THE PUBLISHER.

Test of Eyesight.

Boys often discover their near-sightedness by finding that their playmates can read signs and see clocks and faces at much greater distances than they can. If any, who are not near-sighted, wish to compare their powers of vision, they can find convenient tests in the heavens at night.

Almost everybody knows the constellations of the Great Dipper and Pleiades. Both of these furnish tests of the range of vision. In the latter, a good eye can readily distinguish six stars; one of higher power can detect eleven; one of extraordinary power can pick out thirteen or fourteen. A telescope brings from fifty to a hundred within easy range.

The middle star in the handle of the Great Dipper has a companion star, which a good eye can make out. There is also a third and fainter star, which demands superior vision to detect. Very strong eyes can pick out some of the moons of Jupiter, particularly when two of them happen to come into conjunction.

While the winter sky is bright and favorable, any reader can make the test. Near-sightedness is a growing defect among young people, and may be corrected in part by looking at distant objects in the heavens or on the ocean.

Weak Sight.

Fatigue of the eyes during or after the use of them is the first symptom of weak sight. This is more noticeable at first after reading, writing, or sewing in the evening; soon the same fatigue is noticed after similar occupation in day time. In time this fatigue comes on immediately after attempting to read or sew, and, if work is continued, pain and confusion of vision follows; letters run together, lines are blurred and indistinct. Weak sight is simply a disorder of the muscular apparatus of the eyes.

There are four striking symptoms by which we may judge that the eyes are being injured;

1. Redness of the eyelids and balls.
2. Pain in the eyes.
3. Indistinct or imperfect vision.
4. Frontal or other headaches.

In health the muscles act in perfect harmony, but if these muscles are overworked, fatigued, or sensitive, they do not act harmoniously, and weak sight is the result. Other beside local causes may produce this effect. Any general ill health, during convalescence from long fever, or any cause depressing the tone of the constitution, may indirectly affect the eyes, for the eye muscles share in the general weakness of the body, and any misuse of the organs of sight will result in harm. There is a good rule, "Never use the eyes unless they are abundantly supplied with good blood." During sickness, or when in a state of exhaustion, the eyes are not supplied with the best quality of blood, and great harm can come from too free use of them during such times.

Weak Sight Due to Imperfect Light.

Another good rule is, never use an imperfect light. What is an imperfect light?

1. Deficient amount of light, as in the early morning or twilight, or an artificial light far distant, or a very small artificial light, or light far from a window which is too small for the room and for a dark day. When the light is such as to render it difficult to see the work or print before us, a proper regard for the preservation of vision will compel the immediate stopping of the work. Of course, there are different kinds of work requiring different amounts of light, but the general rule just stated will hold good.
2. Light may be imperfect from its unsteadiness. It is this quality that renders the electric light harmful to vision. Gas light often exhibits a degree of flickering very trying to the eyes.
3. The light may be steady, but the car or carriage in which we are seated may move. The attempt to read in the cars is a fruitful source of injury to the eyes. Some of the worst cases of muscular weakness of the eyes have been derived from this cause.
4. The practice of reading while in a reclining position upon a lounge or in a bed causes the light to enter the eye at such an angle as to require an undue amount of effort in order to see distinctly for a long time. Such a position should always be avoided.

When possible, the light should fall upon the printed page or upon our work from the left side of the body, and from behind the shoulders. In this way the movements of the right hand least obstruct the light and the rays are reflected with greatest directness from the page to the eye.

Rules for the Preservation of Good Sight.

The way to obtain and maintain the best eyesight may be summed up in these plain propositions:

1. Act as if the eyesight were of more importance than any other thing on earth.
2. Have every child's eyes carefully examined by an expert before it is given specific tasks to perform calling for the full exercise of healthy eyes. If the eyes are found defective, then grade the tasks according to the nature of the defect.
3. Never use the eyes when such use causes pain in these organs or in the head.

4. Never use the eyes when imperfectly supplied with blood, as before breakfast, when exhausted after a severe illness, etc.

5. Never use the eyes for close work in an imperfect light.

6. Avoid the excessive use of alcohol and tobacco.

7. Heed the warnings given by redness of the eyelids, and of the whites of the eyes; by pain in or about the eye; by the continuance of indistinct vision for any considerable time.

8. Regard the eyes as a part of a very complex system of apparatuses, the best health of all being absolutely needful for the best health of each.

9. Remember that we do not see with the eye, but with the brain. Hence after the brain is exhausted it is impossible to really see. Hence the absurdity, as well as perniciousness, of any endeavor to see after the brain is exhausted. Especially is this true of young and growing brains. It is well to remember that the normal brain continues to grow until about the age of forty.

The Use of Spectacles and Eye-Glasses.

Weak sight is very often due to defective form of the eyeball itself, it being too flat, too full, or of irregular form.

The large majority of eyes are more or less imperfect in form, and this explains the prevalence of sight weakness. In cases of defective eyeballs, beside following the advice given above, the imperfect shape must be neutralized by the scientific adaptation of spectacles. It is quite wrong to depend upon your own judgment in this matter, or to procure your glasses from a traveling peddler of spectacles.

For elderly people, spectacles are usually preferred to eye-glasses, but for occasional use, eye-glasses, attached to the clothing by a suitable cord or small chain, are always at hand, and may be quickly adjusted. For long use, spectacles are more comfortable.

Blue or smoked glasses are useful in weak sight, when there is much dread of light; but unless really necessary, the eye may become so habituated to a subdued light by the constant use of colored glasses as to be intolerant of ordinary light. Their use should be confined chiefly to wear in bright sunlight on the snow, sand or water. For reading, colored glasses should not be too dark in tint, as too much exertion is required to see clearly through them.

Contagious Eye Diseases.

It should be borne in mind, that diseases of the lids or eyes attended with a pus discharge are contagious. Those suffering with such a disease should be kept apart from others, and great attention should be paid to cleanliness. Towels and washing material should not be used in common.

Diseases of the Eyes of New-Born Infants.

Young babies are quite subject to severe inflammation of the eyes, usually making its appearance in a few days after birth. There is great swelling of the eyelids and a copious purulent discharge, which is highly contagious. This affection is very dangerous to the sight, and therefore the very best medical aid should be secured. It will not be amiss, however, to caution the great care that should be used as regards cleanliness, and the avoidance of any of the matter coming in contact with healthy eyes.

Common Eye Accidents.

Those who work where splinters of metal or stone are liable to strike the eye should wear spectacles at their work.

Spectacles or ordinary glass are a good protection against cinders in traveling. Eye stones are nothing but smoothly-worn pebbles. It is not best to use them. It is not commonsense treatment to cure an irritable eye, suffering from a foreign body, by placing another foreign body therein.

A cinder or other foreign body may often be displaced by quietly and steadily looking downward at your feet, letting the tears that form wash out the irritating substance. If the foreign body sticks on the ball, it sometimes can be readily wiped off with a piece of paper twisted to a lamplighter shape, or the free end of a common match. If it does not come off easily, professional aid must be secured, as great harm may be done the beautiful, transparent front of the eye by the use of sharp instruments in unskilled hands.

If quick-lime or mortar has fallen into the eyes, the best plan is to drop in some olive oil at once. The eye then may be washed out with warm water, to wash away all the particles of lime. This can best be done with a small syringe. If acid has gotten into the eye, use milk and water at once, and in the same manner.

Children are fond of exploding caps with a stone or hammer. This is a very dangerous sport. A piece of exploded percussion cap entering the eye is usually fatal to the injured organ.

Care of the Ear.

The general advice as to the care of the ears is quite similar to that given under the subject of care of the eyes.

1. Act as if hearing were of more importance than any other thing on earth.
2. Refrain from use of the ear when it causes pain, choosing quiet places and deadening sound by use of cotton plugs.
3. Avoid all such injuries to the ears as result from slapping, pulling and very loud and sudden noises.
4. Keep out of the external ear all things smaller than the forefinger or stiffer than a towel or handkerchief.
5. Keep out of the ear all oils, all soaps, all cold water, and everything else recommended by kind but mistaken friends; especially never apply a poultice to the ear for the relief of pain. Dry heat will do all that moist heat can do to relieve, and be free from the danger of absolutely destroying the drum of the ear.

Rules 8 and 9, under the subject of care of the eyes, apply with the same force to the care of the ear. Dr. Van Harlingen remarks upon the hygiene of the ear as follows: "All attempts to clean the deeper portions of the outer passage of the ear by means of ear-spoons and other contrivances, are unnecessary, and sometimes give rise to inflammation. In health, the deeper parts of the ear can be left to take care of themselves. The orifice of the canal is to be cleansed in precisely the same manner as any other depressed portion of the surface of the body—that is, with a wet sponge or cloth. Bathing in salt water may injure the ear in two different ways. The water may gain an entrance into the external canal, and by its irritating properties set up an inflammation. I am disposed, however, to believe that in the great majority of cases the disease is caused in another way. In the manoeuvres incident to diving, swimming under water, floating on the back, etc., the nasal passages become filled with salt water. The bather then yields to an almost irresistible desire to blow his nose, in order to get rid of the irritating fluid. The blowing is generally of a vigorous character, and often forces some of the salty fluid up through the nasal passage (Eustachian tube) which leads from the back part of the nose to the drum cavity, where its presence may give rise to even very severe inflammation. If the bather is careless, or not familiar with the surf, his ears may receive injury from the mere impact of the waves. What can be done to avoid these injurious effects of bathing? After the bath abstain from blowing the nose in any but the gentlest manner until after all the active secretions of mucus have ceased. It is considered advisable to wear cotton in the ears during bathing if the bather has an irritable skin, or has had some affection of the ear canal, or if he knows that his drum-head is perforated; otherwise the protection afforded by the cotton is too slight to compensate for its annoyance.

Care of the Skin.

Every day washing should be the rule the year round, but particularly so in summer. Ablution of the person sufficient for cleanliness may easily be made to act also as a proper stimulant by using a rapid sponge bath, followed by quick rubbing for a few moments with a towel of such texture as can be borne without irritation. The skin will not bear the frictions of a lintish towel so well in summer as in winter. Invalids should avoid chilling the body; simple and generally healthful as bathing is, it cannot be trifled with. Many a good man or woman has unwittingly committed suicide with water. Mankind is disposed to abuse and misuse almost every good thing. If the person is very feeble and very sensitive to the application of water, such a one can attend to one part of the body one day and another the next. It is well, however, to give daily attention to the feet. the feet perform a large part of our bodily labor, and the excretion from them is so great that particular care should be taken to keep them clean. Warm sponging, followed by friction, is more suitable for cleansing the skin of dirt, and for the delicate invalid and child. The cold bath in the tub, as the same in the river or sea, needs much more caution as to the condition of the system, the time and circumstances than the sponge bath, needful for cleanliness and health. Only those who daily use the morning sponge bath can imagine the glow, invigoration, and general good feeling that come from it.

The tepid or warm tub bath may, with proper care, be occasionally indulged in as a luxury, and may be made a means of cure for the ill, or a preventive for one threatened with disease. The vapor bath, the hot bath, and the so-called Russian—in which more extreme changes of temperature and perspiration are gone through—all require much care and skill in their use than the more simple kinds, and without this skill and care much more harm than good may accrue. The air bath, or a short exposure to the air and sun, accompanied with a degree of friction, or if the atmosphere be warm, a longer exposure to the sun is salutary; and, like a frequent change of clothing and the exposure of the naked body to the dry heat of a fire for a few moments, is beneficial. Whatever stimulates gently the skin without irritating, chilling, or inducing much perspiration, invigorates it and prepares it to resist disease.

Soap.

The amount of soap used in the toilet depends upon the delicacy of the skin and the exposure to which it has been subjected. Those who have oily skins, particularly about the face and shoulders, depending upon well-developed and active oil-glands, require much more soap than those having harsh and dry skins lacking in oily secretions.

A good soap should be composed of caustic soda and refined animal fat, or the best olive oil, to which perfume may be added. Too often strong perfumes are added to hide the evil quality of a soap, made, perchance, of rancid fats and various oily refuse. Opaque and mottled soaps are more easily adulterated by the makers than pure white or transparent soaps. Good white Castile soap, or a transparent soap, should be, therefore, the kind selected.

Cosmetics.

Cosmetics are substances applied to the skin, hair, teeth, nails, etc., to improve their appearance. None of them are essential to health; some are positively harmful. A number of cases are on record of poisoning from the use of face powders. Such powders as contain lead are the most dangerous. To remove the shine of the skin in hot weather, a little powder may be allowable, but the simplest, and such as is made at home—as powdered starch or rice flour—only should be used.

Formula for a Toilet Cologne.

Oil of bergamot	4	drachms
Oil of lemon, oil of orange, lavender, of each	1½	drachms
Oil of cloves, neroli, of each	½	drachm
Oil of cinnamon	15	drops
Deodorized alcohol	3	pints
Rose water	6	ounces

Care of the Teeth.

Attention to the teeth should begin early in life, even during the period of first teeth. Decay of the "milk" teeth should be prevented, and filling is just as important as with the permanent set. The temporary teeth must be removed in due time, if they do not fall out themselves, and the permanent ones must be trained to fill their places. The teeth should be cleansed five times a day—morning, bedtime, and after each meal. A soft brush is better than a stiff one, so as not to wound the gums. The best dentrifice is water; sometimes a little prepared chalk or white Castile soap may be used. The too frequent use of powders containing cuttlefish bone or charcoal will injure the enamel of the teeth. When gums are tender and tend to bleed, add a few drops of tincture of myrrh to the water. Avoid all patent powders and washes. It is a good rule to visit the dentist once each season to find out the exact condition of these important organs. Never lose a tooth, if Art can save it. The shape of the jaw and face is altered by the removal of teeth. When, by reason of a collection of tartar on the teeth, a powder is desired for its removal, the following will be found to be useful and agreeable:

Tooth Powder.

Precipitated chalk	12 drachms
Rose pink	2 drachms
Carbonate of magnesia	1 drachm
Oil of rose	5 drops

Mix all well together.

Care of the Mouth.

Besides the care of the teeth, the mouth itself should receive some attention. The mucous membrane lining the lips and mouth and covering the tongue, is quite thin, and easily absorbs matters placed in contact with it. It is only reasonable, then, to advise care as to the putting of coins in the mouth, as to promiscuous kissing, and the licking of postage stamps. Even some caution should be exercised as to putting the fingers in the mouth, without washing, after handling books in public libraries, handles of street cars, etc., which are touched by the high and low, cleanly and dirty. This is an argument in favor of the constant use of gloves, and shows that the demands of fashion are often based upon sound philosophy. We trust the day will come when fashion will put a stop to the usual kiss salutation of ladies, and especially the kissing of children by every relative, friend, and acquaintance that happens to come in their company. Sore throats, diphtheria, and even loathsome diseases, are communicated in this way.

Another point in this connection is the use by children of toys which are painted with poisonous dyes, and the eating of colored candy. It is best to select toys of plain wood, and candies uncolored.

Care of the Hands.

To prevent the cracking and roughness of the hands, so common in winter, cold water alone should be used, and soap used only sparingly. The hands should not be washed just before going out of doors; but, if they are washed then, rub in a little good grease, as cosmoline, to prevent the action of the air. Skin gloves, as kid, dog-skin, castor, or buckskin, should always be worn in cold weather. Silk or woolen gloves are more likely to give rise to chapping. If the hands have become chapped, anoint at bedtime with tallow, cold cream, or cosmoline; put on an old pair of gloves, and in the morning merely wipe off, do not wash, the hands.

For Whitening the Hands.—Take a wineglassful of cologne water, and another of lemon juice, then scrape two cakes of brown Windsor soap to a powder, and mix well in a mould. When hard, it will be an excellent soap for whitening the hands.

Care of the Feet.

Corns and bunions are usually caused by improperly-fitted shoes. The shoe should be shaped in accordance with the proper outline of the foot, and made of pliable and soft leather. Certainly it is plain that the foot must get into the shoe, and if the shoe differs in shape from the foot, the more pliable foot will adapt itself to the shape of the shoe. Fashion has in the past dictated an arbitrary form of shoe. She has really determined that nature made the foot entirely wrong, and has taken it upon herself to change the shape. Now, it holds true of any organ in the body, if we in any way change its form, not only do we not improve, but we actually disfigure it. The function of a shoe is to protect the foot, not to distort its shape.

Ingrowing Toe Nail.

The cure of this condition—from which so many persons suffer—of the much-abused foot is slow but sure. The foot must be often soaked in warm water, until the soreness is so far abated that it can be handled without much pain; then, with a probe or suitable instrument, pass pledgets of absorbent cotton (plain or medicated with glycerine, or some healing, soothing remedy) as firmly as possible under the most detached point of the nail. The toe should be dressed daily, soaking it with warm water and applying fresh cotton, pressing the same farther and farther under the nail, as it may be necessary. When portions of the nail become free, they may be cut off, and mild caustics, as burnt alum, may be applied to remove proud flesh. Scraping the nail in its center will be an aid to getting the cotton more successfully in its place.

Do not change the shoes of children first to one side, then the other. This is done to make the shoes wear evenly, or prevent their turning over to one side at the heel. This is a saving of shoe leather at the foot's expense. After one foot has shaped a shoe to itself, a change to the other foot should never be allowed.

It has been recommended that those who are desirous of having their feet natural and healthful should not wear unyielding stockings. There is no doubt that during the growing years stockings can influence the shape of the foot, especially if they are tight, short, and narrow-toed, drawing the toes together, and keeping them there. An English author recommends the wearing of stockings with toes, similar to the fingers on a glove.

Corns and Bunions.

A common corn is caused by friction or irritation of the skin from tight, loose, or otherwise ill-fitting shoes, hard, stiff leather, large wrinkles over the joints, high heels that pitch the foot forward and keep it constantly bearing against the leather over the toes, and shoes narrow at the toes. In such cases the skin thickens and hardens to protect itself from injury, in just the same way that it does upon the hands or other parts of the body exposed to rough contact.

The great cause of bunions is the wearing of short and narrow-toed shoes, making a constant tendency to enlarge, widen, and project the joint of the great toe.

Ordinary hard corns, when young, may be removed by scraping up the callous skin about the borders and prying out carefully with a penknife. It must be remembered, for the successful treatment of corns, proper foot covering must be worn. The shoes must be soft and of proper fit. Only such means can effect a radical cure. Corn cures and plasters are but a vexation if the laws of hygiene are not obeyed. Treat the foot with as much care as the hair, or face, or teeth, and far less will be heard of corns. The radical cure is easy, but few obtain it. Fashion, ignorant shoemakers, custom, and carelessness, combine to inflict upon our most useful members torture and a degree of uselessness. The important part of treating corns is to relieve the pressure. Persons ill with a long fever, confined to their beds, have found their corns gone on getting from bed.

Quite a successful plan of treatment is as follows: Rub the corn twice a day with volatile liniment, and in the interior cover with a corn plaster. Every morning and evening the foot is to be put for half an hour in warm water, and while there the corn is to be well rubbed with soap. Afterward all the soft, white, pulpy matter is to be scraped off with a blunt knife, stopping the scraping, however, the moment pain is felt. If this treatment is persisted in, the corn will be cured in about two weeks. Another method: Soak the corn as above, shaving off the horny substance, then touch with nitric acid. The aqua-regia, nitro-muriatic acid, is the usual secret remedy of the "corn cures." Some doctors have advised that the corns be shaved down close, after soaking in warm water and soap, and then be covered with a piece of wash-leather or buckskin, on which lead-plaster is spread, a hole being cut in the leather the size of the corn. They may be softened so as to be easily scraped out by rubbing glycerine on them. In applying acids, only a very little should be used, and applied with some sharp-pointed instrument. This destroys the papilla and changes the structure of the skin, so that the corn never reappears. It is not necessary to burn the surrounding tissues, but only to cause a very small burn, just on the hardened point of the corn.

A bunion is really an inflammation of a sac at the inside of the ball of the great toe. The treatment is soothing; caustics, as a rule, are not allowable, and the deformity is more or less permanent.

The callosities that come upon the heel can be scraped off after soaking in warm water and soap.

The toe nails should be cut regularly and carefully. Overshoes should always be worn in wet weather. Ladies often go without them in damp weather, relying upon the thickness of the soles of their shoes, and thus expose themselves to risks. A sheet of india rubber is sometimes placed between the layers of leather in the soles of shoes, or felt or cork soles are placed within the shoe. There is no objection to these, providing they do not supplant the rubber overshoes.

WHAT AND HOW TO EAT.

BY THE PUBLISHER.

It is evident that the stomach is one of the most important organs of the body. It receives and in a great measure prepares the food that nourishes every organ and tissue of the body. It is the food we eat that makes the blood, and if the blood is impure or laden with improper substances we must expect the whole organism to be affected. Without good, rich blood the heart becomes weak, the liver becomes obstructed and the kidneys are overburdened, and other organs are endangered.

To properly care for the stomach is a matter of great concern to everyone; and to know what to eat and how to eat means to know how to prolong life and to avoid sickness. Many persons of delicate constitutions are able to keep well and live to old age by observing the rules of proper eating; while, on the other hand, many who are naturally endowed with robust constitutions are continually suffering from sickness and die early, because they disregard all laws of health and eat improperly.

Before we speak of foods and their properties let us glance at the process of digestion, that we may better understand the physiology of eating and the reasons for selecting suitable foods.

WHAT DIGESTION MEANS.

Many people think that the stomach is the only organ that digests food, and have very little idea of what digestion really means or how it is accomplished. The digestion of food means its proper preparation for being taken up by the blood current and carried to the various parts of the body to nourish tissues.

There are a great many different kinds of structures and tissues in the human body and they are all constructed out of the food we eat. But that food must be varied in character to meet the requirements and must be suitably prepared for its assimilation. The different processes involved in the digestion of food are interesting.

First, the mouth has an important part to play. When food is received it excites the action of what are known as the salivary glands, which secrete the saliva. This saliva has an active principle, called ptyalin, which, when mingled with the food, partially digests it. To get the full benefit of its action it must be thoroughly mixed with the food, which is accomplished by the act of chewing. This also excites the salivary glands and causes an increased flow of saliva, which serves to moisten the food as well as help digest it. Thus it can be readily understood that all food must be thoroughly masticated; not merely to make it moist and fine enough to swallow, but to mix it well with the ptyalin which partially digests it and prepares it for the stomach. Rapid eating is a prolific source of dyspepsia. Even mush and all other soft foods should be chewed about in the mouth before being swallowed, so as to render them easy of digestion. Those who observe this rule will avoid much trouble.

The stomach is one of the most important organs of the body, for if it fails to do its duty the whole organism soon becomes affected. It is composed of various layers of muscular fibers, so arranged that when food enters the stomach it excites a churning motion, which still further reduces the food and mingles with it the digestive fluids secreted by the glands of the inner lining of the stomach. These fluids combined, are called the gastric juice and include pepsin and rennet, mucus and acid. Gastric juice is essential to digestion, and in the healthy stomach it is easily secreted. The odor of palatable food or merely sipping some agreeable fluid or chewing upon something pleasant to the taste, will excite the glands of the stomach and cause the secretion of gastric juice. That is why the limited use of chewing gum after meals may aid digestion. When fluids are taken to excess, they will often so greatly dilute the gastric juice that it will not have strength enough to digest food, and therefore very little drinking at meals is best. To chill the stomach will retard digestion and to heat it by using warm soup before eating, will aid digestion. Foods that are not digested are liable, under the influence of the warmth and moisture of the stomach, to ferment and cause the evolution of gas. This distends the stomach and causes pressure against the lungs and heart, producing symptoms often mistaken for heart disease, and also weakening the stomach by the distension of its walls and by the presence of the irritating, fermenting substances. After the food has been masticated in the mouth and thoroughly mixed with the active principles of the saliva, and after it has been acted upon by the gastric juice and reduced to the finest division by the action of the stomach, it is still not entirely digested; but ready to enter the intestines where the process of digestion is completed. Directly beneath the stomach is a hammer-shaped organ called the Pancreas, ordinarily known as the "sweet-bread." It secretes a fluid containing a principle called Pancreatine, which performs as important a part in digestion as pepsin does. The pancreatic fluid empties into the small intestines, where it mingles with the food. Besides this there is the bile from the liver, which stimulates the bowels, keeps the food alkaline and moist and prevents fermentation. Then there are small glands in the intestines which have their special offices to perform.

Thus it will be seen that digestion is a complicated process and after it is completed, the food is in a condition to be absorbed and taken into the circulation to be carried as blood to all the tissues of the body, to nourish them and supply the material necessary to carry on the wonderful mechanism of the living body.

There are a great variety of tissues in the body; and to develop and maintain them it is necessary to eat a variety of foods. The substances we eat contain different kinds of principles, adapted to the needs of the different classes of structures to be nourished.

First, there are muscle producing foods, called nitrogenous foods. These embrace such articles as lean meats, eggs, cheese, albuminous substances, casein of milk, peas, beans, lentils, etc.

Second, there are the carbohydrates, or fat producing foods which contain sugar or starch; among these are potatoes, corn, wheat, oats and grains of all kinds.

Third, are the heat producing or carbonaceous foods. Fats, suets, butter, lard and oils of all kinds belong to this class.

Water is a necessary solvent and salt is valuable, of themselves they are not strictly foods, although vegetables and all fruits contain certain quantities of various salts of lime, soda, potash, magnesium, iron, etc.

Nitrogenous or albuminous foods are chiefly digested in the stomach, while the fats and starchy foods are acted upon in the upper intestines and by the ptylin contained in the saliva. Such articles should be well masticated to insure mouth digestion.

A mixed diet is always best, although certain diseased conditions may require abstinence from starchy or albuminous or fatty foods. Reasonably, more heat producing foods can be eaten in winter than in summer. By a wise provision of nature most of the articles we use as food contain definite proportions of all the constituents, with some greatly in excess of others, which permits of the classification given above.

Fish.—Good fresh fish constitutes healthful food when taken in conjunction with other articles. It contains what are known as phosphates, which are excellent for strengthening the nerves when taken in this form. Usually fish is spoken of as a brain food. It does not of course increase intellectuality, but it does increase the power of nerve resistance. The stolidity of those races such as the Chinese which live principally upon fish, is well known.

An exclusive fish diet is not advisable, but partaking of it at frequent intervals is most beneficial. The religious custom of eating fish instead of meat one day in the week is an excellent hygienic regulation, and should be followed even though not prompted by questions of religion.

There are certain conditions of the stomach which cause a craving for salted fish. This craving should be satisfied, within bounds. We have known persons whose stomachs were so sensitive that the daintiest foods could not be retained, and yet they would relish and thrive upon smoked herring or fish preserved in brine. Fish that is stale should never be eaten, it is poisonous, and while its effects may not be immediately noticed, yet it will prove injurious. Many believe that leprosy is indirectly caused by the eating of half decayed fish.

Oysters are enjoyed by most people, although by some they are looked upon with disgust. They do not afford much nourishment, but are often relished by persons who cannot receive ordinary food into the stomach. The oyster "juice" taken cold is decidedly agreeable to most fever patients. It contains considerable nourishment, and its mucilaginous character renders it soothing to the irritated stomach or bowels. Fried oysters are hard to digest and in conjunction with wine or champagne are liable to excite erotic passions.

Clams.—The whole clam should never be eaten except by persons with strong digestive powers. The clam "juice," heated with water (known as clam bullion) and highly seasoned, is a most excellent stimulating broth. Clam chowder is a heavy dish for anyone.

Lobsters and Shrimps are both digested with difficulty and are not food for delicate persons. Eels are usually too fat for sensitive stomachs. Frog legs are perhaps the most easily digested of this class of articles. If stewed in cream they may be eaten and relished by most invalids, but when fried they are far less digestible. Crabs, properly prepared (as when boiled), are often a pleasant change, but as usually eaten they are undigestible.

Eggs, strictly fresh, constitute an ideal nourishment. In fact, their constituents are all that is necessary in conjunction with water and milk, to support life for a long time; but their constant use turns many against them. They are best eaten "soft boiled" or raw, or poached. When fried or "hard boiled" they are not easily digested. Persons of delicate constitution may be greatly strengthened by eating, each morning. an egg-nog prepared as follows: Beat well in a large drinking glass the yelks of two eggs, add a pinch of salt and of sugar and almost fill the glass with half milk and half cream, stir thoroughly and on top place the well beaten white of one egg. Do not add brandy or whiskey to this egg-nog, it would then be harder to digest.

Milk.—Fresh, pure cow's milk is hard to get in the cities; but where it can be obtained there is no better and more nourishing fluid. Its more general use would be beneficial. Some persons cannot drink milk without becoming bilious, but in such cases there is usually a need for cleansing the liver. Boiled milk is not good; although sterilized milk is to be preferred when germs are possibly present. It is prepared by placing covered jars of milk in cold water and letting the water come to the scalding point (150 degrees.) It is a bad practice to allow milk to remain in the sick room. It absorbs germs quickly and becomes unfit for use. The milk supply of the cities has been a matter of great concern. Its adulteration is almost universal, and many infant lives are imperiled by its use. Unless children can be given absolutely pure milk, they had better be fed upon some one of the excellent "prepared foods" for infants. Condensed milks are good when manufactured by responsible firms; but the mixtures of sugar and skim milk so often put into cans, are not fit for use.

Buttermilk is greatly enjoyed by many, and is an aid for the digestion of starchy foods. But it must be remembered that too often the sour cream, before being churned, is left in places that cause it to be filled with poisonous germs.

Goats Milk is extremely nourishing. It costs almost nothing to keep a goat or two in the country and the milk given to delicate women and children will be of great benefit.

Cheese made from the entire milk is good. It contains phosphates and nitrates, and besides being a relish it is very nourishing. Of course cheese must be eaten only in small quantities. "Rotten," moldy and very strong cheese will not be digested. Persons suffering from irritated conditions of the kidneys and women in the later months of pregnancy should not eat cheese of any kind.

Meats.—The formation of human beings is such that a certain proportion of meat is included in a natural diet, and under ordinary circumstances it should be eaten. No one meal should include more than about one-seventh part of meat; and this proportion should not be eaten at every meal.

It is always best to eat meat only at the noonday meal, although it is becoming common practice to eat the largest amount at 7 o'clock dinner. It would be far better to have the evening meal consist of vegetable articles, and if only a light noon-day luncheon is taken, have the meat in the morning for breakfast. To use it three times a day is not conducive to health. Meat is what is termed nitrogenous food and helps to form muscular tissues. Its chief value lies in its fibers. Children should not be fed upon it until four or five years of age, at the youngest, and older persons will find it to their advantage to eat very little of it.

Broths and beef tea are excellent for invalids in most cases; but the ordinary "beef extracts" are utterly devoid of nourishment and act simply as stimulants. Gelatin or calve's foot jelly may be used to great advantage where bone development is insufficient and when taken freely by pregnant women it helps develop the bony structures of the child.

Broiled, tender beefsteak, rather rare, is the best kind of meat that can be eaten, and pork is the worst. Veal is hard to digest and is liable to cause bowel troubles in children and old persons. Mutton and lamb are good, especially when boiled. If pork is eaten at all, it should be only by persons who have an abundance of outdoor exercise, and then the pork should be "corn-fed" and thoroughly cooked. Beside trichinosis possibly being caused from diseased rare pork, other unpleasant conditions may arise where no trichinae exist. Rich gravies are always liable to cause disturbances of the stomach and should be used very sparingly by even the healthiest.

Fowls.—There is an impression that fowls of all kinds are easily digested, but this is not correct. Pigeon, chicken, turkey and goose are usually acceptable to most stomachs and digested without difficulty; but duck requires fully four hours for digestion. The dark meat is more easily digested than white meat. For an invalid the thigh of a fowl is best. Fried spring chicken is not easily digested. Chicken broth, if there is not too much fat in it, makes a most nourishing food for invalids. Beef tea is strengthening and mutton broth is healing. Beef extract, as ordinarily sold, is stimulating to the appetite, but it is not nourishing.

Fruits.—Good, sound, ripe fruits are among the best articles of diet. They contain sufficient acids to aid digestion and an abundance of nourishment. Their free use will help to regulate the bowels and keep the liver cleansed. When there is a special longing for certain kinds of fruit it is best to satisfy it within bounds. Dried fruits, well prepared, are fair substitutes for fresh fruits; but a great deal of dried fruit upon the market is wormy. It is a good plan to examine under a strong magnifying glass samples of dried fruits before buying. It will be surprising to see the masses of very small worms often found upon the inferior grades. It does not pay to economize at the expense of using unsound food.

To eat food properly, it should be thoroughly masticated and the seeds, skins and cores thrown away. It is a good plan to eat slightly acid fruits, such as oranges, strawberries or grapes, the first thing in the morning. They are then very acceptable to the stomach and are excellent appetizers, immeasurably better than wines or other alcoholic beverages which simply excite on account of the alcohol they contain. There is an old saying which is worthy of consideration, "In the morning, fruit is gold; at noon, it is silver; and at night it is lead." Many persons cannot eat fruit of any kind at night without suffering from indigestion. Their stomachs are weak and need to be properly treated.

Apples.—There is probably no fruit so universally healthful and acceptable to the stomach as apples. The more they are eaten the less danger will there be of sickness, all other things being equal. There are a great many varieties of apples, so many, in fact, that every taste may be suited. The kind that suits one may not suit another; but they are all health-giving and nourishing, and their use helps to drive away disease and prolong life. They are best eaten raw; but stewed apples are good, and for the sick well baked apples are most excellent.

Peaches and Pears.—When these fruits are picked ripe from the trees they are luscious and digestible; but when they are picked green and stowed away in dark closets or drawers to ripen they lose much of their value and often become unfit for use. The skins of these fruits are very undigestible and frequently cause inflammatory conditions of the bowels; they also are liable to produce tartar on the teeth.

Quinces.—This fruit is rarely eaten raw and is mostly used as a preserve with apples, or in the form of jelly. A good method of preparing quinces for use in time of sickness is to make a thin jelly out of the cores and seeds. This is very mucilagenous and ropy, whence it is often called "quince-rope." It is soothing for coughs and sore throat and useful after bowel troubles.

Grapes.—Nearly everyone can eat grapes. They are very nourishing and healthful and give strength. The seeds and skins should not be swallowed. It may be a little difficult at first to separate the seeds from the pulp, but practice will make this easy of accomplishment in the mouth. Accumulations of grape seeds in the pouch of the stomach may cause serious inflammation or great distress. The unfermented wine made from good grapes, will be found very grateful to invalids. It may be kept indefinitely in well sealed bottles.

Raisins, Figs and Prunes.—When these dried fruits can be secured in good condition, free from worms and mustiness, they are good. When stewed, they are excellent for constipation, and the juice is acceptable to most weak stomachs. They are especially suited to nervous persons and irritable children and are soothing in their influence. An excellent confection for constipation may be prepared by chopping together, very fine, half a pound each of figs and seeded raisins and prunes and dates, and mixing with them thoroughly one drachm of leptandrin. Of this take a piece about as large as a tablespoonful every night. The mixture can be kept a long time. If constipation is not very pronounced the leptandrin can be omitted and the fruits alone will act as a mild laxative.

Oranges.—A good orange is delightful. It is the invalid's friend. How grateful to the fevered lips and mouth is the juice of an orange. Many times oranges can be eaten and enjoyed by the dying after everything else is repulsive. To eat an orange properly, cut it crosswise and dig out the pulp with a sharp pointed spoon and leave the inner and outer skins untouched. Oranges aid digestion and contain the vegetable acids needed by the system. They are best eaten immediately before breakfast. A very pleasant confection may be made by soaking orange rinds in salt water for forty-eight hours, then drain them well and sugar them with granulated sugar. A little dried "orange peel" is also useful as an aromatic when added to infusions. Chewing it will often aid the expulsion of gas from the stomach. Grape-fruit is very similar to oranges. They are larger and the rinds are smoother and of a bright yellow. The inner skin is intensely bitter and should be avoided; the pulp is very pleasant and is a decided tonic to the stomach and nerves. It is useful in cases of indigestion and dyspepsia.

Pineapple.—This is a pleasant fruit and when properly prepared by cutting out all the harsh pieces, is very digestible. It is peculiarly valuable in sore throat and diphtheria, the juice alone, frequently taken, will sometimes modify severe throat troubles. Pineapple jelly is usually enjoyed by invalids.

Nuts.—Most persons can eat nuts with benefit; and if eaten properly, they make excellent nerve food, on account of the phosphates they contain. The oil is also highly nutritious. But care must always be exercised in eating nuts, lest they are not digested properly. The fat of the nuts, which is wholesome and nourishing under ordinary circumstances, changes into an irritating poison when it becomes rancid from fermentation. Usually nuts are eaten after a hearty meal. This is unwise, for an overloaded stomach is liable to result in fermentation.

The best time to eat nuts is during a light meal of easily digested foods, or halfway between meals. A little salt taken with nuts will greatly aid their digestion. The prospective mother who can judiciously eat reasonable quantities of nuts and digest them, will greatly add to the healthy condition of her child, especially as to its nervous system and body structures. It is also a fact that nuts are beneficial to the teeth.

Small Fruits.—Berries are greatly enjoyed by some, and they are, as a rule, good food. Persons whose bowels are sensitive or who are constipated may be troubled by eating raspberries. Many cannot eat strawberries without being subjected to an acid condition of the blood, which causes great itching of the skin. Blackberries are useful in diarrhoea, and are the most nourishing berries. Currants and gooseberries, in small quantities, will often aid the digestion of heavier foods. Blueberries are cooling and acceptable to sensitive stomachs.

Vegetables.—We are organized to subsist largely on vegetables and cereals; although an exclusively vegetable diet is unsuitable to our needs. It may prove beneficial for a time to such persons as have been eating meats to excess; but as a rule vegetables should be eaten along with other classes of foods; for an evenly balanced diet, adapted to our needs and our individual temperaments and habits of life, will be found of the greatest value. There are many kinds of vegetables and a knowledge of the food characteristics will be valuable.

Potatoes.—These constitute a large bulk of the food of most persons. They contain a great deal of starch, and are classed as "starchy foods." They can be safely eaten in large quantities by persons who take a great deal of outdoor exercise or do considerable work, but others should eat of them sparingly. Many persons suffer from indigestion and constipation simply because they eat too freely of potatoes. Baked potatoes are digested in two hours and a half, and are most excellent food, especially if the skins are eaten with the bulk. Boiled potatoes digest in three hours and fried potatoes take four hours for digestion, and many cannot digest them at all. The entire raw potato consists of seventy-five per cent of water. When this is extracted the residue consists of over sixty per cent of starch. Most of this starch is converted into dextrine by roasting; old potatoes contain less starch than new potatoes.

Rice.—This is about the most easily digested of all foods, when well cooked, one hour being the time usually required for its digestion. For that reason invalids can usually eat rice when other solid foods are unacceptable. It contains over eighty per cent of starch, and for that reason should not be eaten to excess. Races of people who subsist largely upon rice are sluggish and unprogressive, and make very little progress.

Barley is very nutritious and should be more generally used. The water in which barley has been boiled for an hour or more, when seasoned, makes an excellent broth for weak stomachs, and invalids whose stomachs refuse to take nourishment of any kind can often be sustained by frequent small enemas of this plain "barley water."

Beans.—Besides containing large quantities of carbonaceous or heat producing elements, dried beans contain nearly twenty-five per cent of nitrogenous substance. This renders them highly nutritious and good muscle forming food. Persons who have heavy manual labor to perform can safely eat large quantities of beans; though those of sedentary habits should eat sparingly of them. They contain a large percentage of waste, and for that reason are apt to cause the evolution of considerable gas in the intestines and occasion much annoyance.

Onions, Carrots, Cabbage and Turnips are among the harsh vegetables. When boiled, they require from three to four hours for digestion, and an hour less when eaten raw. Some stomachs cannot endure them, and invalids should not eat them, although onion broth is an excellent drink where the glands are obstructed or the kidneys are inactive.

Bread.—"The staff of life" too often proves to be the staff of death. The modern baker's bread is, as a rule, unfit to eat. It is made from pure white flour, and usually whitened by alum. Of late years millers have vied with one another in producing the "whitest flour known." To accomplish their purpose they employ what is known as "the roller process." This separates from the flour all portions of the wheat except the parts that are in the least way dark in color, and leaves almost pure starch, to be called flour. In the darker portions and outside of the wheat lie all of the most nourishing ingredients—the phosphates that build up nerve and brain tissues, and the nitrates that give strength and endurance. When we consider that wheat contains every element that is in the body, and no more, it is apparent that it is an ideal food for mankind.

Bread made from the entire wheat is the best food that can be eaten. Make it without an excess of yeast, bake it well and eat it cold. Hot bread and biscuits are injurious to the stomach and teeth. Baking powders, as a rule, are not healthful; some of them, especially the alum baking powders, are absolutely harmful. The phosphate baking powders are probably least harmful. The bread known as Swiss bread bids fair to meet with popular favor. It is made of entire wheat flour, and prepared immediately after the flour is ground by a peculiar process which preserves all the nutritious characteristics. To get the full benefit of bread, it should always be thoroughly masticated. It is then well received and better digested by the stomach and consequently more nutritious to the body.

HOW TO LIVE LONG.

BY THE PUBLISHER.

The following rules should be studied well and made the guide for daily living. We can have but one life to live in this world; then why not live it well? Nearly all the diseases and ailments can be avoided by knowing beforehand how to live. Our journey is short, at the most, and we should make it as pleasant as possible to ourselves and those about us. Health is the richest blessing in the power of Nature to bestow and we can all receive it at our will. At first it may require efforts to follow strictly the rules of right living; but habit soon makes them easy, for they are but the natural laws of life.

1. Keep the Mind at Peace.

Worry and fret, temper and anger never accomplish anything but harm. They actually injure the brain cells and cause the formation of poisonous materials that damage the whole nervous system and cause disease. No one can digest a meal while in a fit of anger; and all ugly manifestations prevent the proper performance of functions. Peace of mind is the greatest happiness of life. Cultivate it till it becomes as a second nature. It will help to keep you vigorous and its influence will help all those with whom you are associated. Think twice when tempted to speak or act in anger or even to think in anger. You may add years of happiness to your life by observing this rule.

2. Take Regular Periods of Rest.

The nerves and other tissues of the body cannot be under continual strain without injury. They must have rest from labor, sufficient to allow them to recuperate from a strain. The regular routine of life is wearing upon the system at best; and when it is possible to secure an occasional change of climate and surrounding, it should be done. Every woman should take a trip away from home at least once a year. The relaxation from household cares and duties for a month, or even a week, will strengthen the body for the work that must be performed. It may seem impossible to take such a vacation, but by good management, with the help of a kind husband or other members of the family, it can usually be arranged. Mothers need the rest and change; it will prolong life and increase its happiness.

3. Secure Regular Sleep.

Nature has made provision for periodical periods of rest during sleep, in which the strength is recuperated and the injuries inflicted upon tissue by the exertions of the day are repaired. The old saying, "early to bed and early to rise," is good advice; provided that when you go to bed you will go to sleep at once, and that you will arise as soon as you wake up The cares of the day and the possibilities of the morrow are poor bed companions. Dismiss them when you enter your bedroom and make their dismissal emphatic. Let your hours of sleep be regular, and in number as many as the system demands, but no more. Too much sleep is debilitating, and unless the body is peculiarly exhausted, from six to eight hours are sufficient. When it is possible, an afternoon nap of half an hour is always of great benefit.

4. Eat Correctly and Regularly.

In the chapter on "How to Eat" will be found descriptions of the various characteristics of foods and of the process of digestion. Let the meals be regular and avoid eating between meals. Nature seeks rhythmical and periodical actions, and nowhere is it more desirable to satisfy her than in the matter of eating. Never eat to excess, avoid spices and highly seasoned foods, do not eat when excited or exhausted (a few minutes quietude before meals is best), chew the food slowly and avoid all articles that do not agree with you.

5. Drink Properly.

Every tissue of the body contains water. It is the fluid that gives form to structures and lubricates the passages. Without it the body would be a shriveled mass. It is simply an absolute necessity of existence, and that it should be taken in large quantities is apparent to all. Drink pure water, as free as possible from limy substances and perfectly free from organic material. Distilled water is good for a season when the system is clogged with impurities, for it is the greatest known solvent and dissolves the excess of salts that sometimes cause rheumatism and other diseases. As a rule spring or deep well water, as soft as possible, is best to drink. Everyone can estimate the quantity of water that can be used without inconvenience. Let the quantity be large. Avoid drinking much fluid at meal time, as it dilutes the gastric juice and interferes with digestion. Tea and coffee and alcoholic liquors of all kinds are unnatural drinks. They are false stimulants and injure the stomach.

6. Breathe Correctly.

The blood from the body all comes into the lungs to be purified by the air. How important it is, then, that every precaution should be taken to breathe only pure air and to breathe as much of this air as possible. Take deep and regular inspirations, with the shoulders thrown back, so as to allow the lungs to expand as much as possible. Do not remain in rooms that are laden with poisonous gases and be sure to have the sleeping room well ventilated. Nothing more quickly causes disease than inhaling poisonous gases.

7. Keep the Skin Active.

This is as important as correct breathing. There are millions of pores in the skin, through which poisonous, waste material is being given off from the body. If the pores become closed this poisonous material is re-absorbed. Bathe the body frequently in water of a temperature most pleasant and remember that "cleanliness is next to Godliness."

8. Take Proper Exercise.

The body was constructed for use, and when not used it soon becomes diseased. Exercise within reasonable bounds is absolutely necessary to maintain health. It equalizes the circulation and distributes nerve force evenly throughout the body. It increases the appetite, aids digestion and helps to get rid of waste material. Do not work to exhaustion and let all exercise, as much as possible, be out of doors.

9. Shun Bad Habits.

It is an easy thing to form habits that are detrimental to health. They are too numerous to mention. Do not form them and then no effort need be made to break them.

10. Do Not Injure the Body.

It is slow suicide to compress the body to "improve the shape." Tight corsets, tight shoes and other similar abominations must be avoided. In addition, never use narcotics or poisons in any form, no matter how great may be the temptation. Such things are by nature calculated to injure and destroy the body. Leave them alone.

SURGICAL EMERGENCIES.

BY THE PUBLISHER.

Wounds.—Men whose business it is to work as wood-choppers, railroad men, miners, etc., and, indeed, all who are liable to cuts and wounds, should know what to do until the doctor comes.

The first thing we shall call your attention to is the necessity of providing yourself with a few necessary articles, in case of emergencies; and first we shall mention Monsel's solution and some adhesive plaster. Here we are prepared against bleeding, except a vital part has been injured. We will suppose, however, that, unfortunately, one has received a wound, either from some sharp instrument or a gunshot wound, or some part of the body has been lacerated, contused or punctured from some cause; and that the wound was bleeding freely. Before the wound is dressed the character of the bleeding is to be noticed. If the blood is dark-colored, and flows regularly in a stream, it is venous blood, and you will be able to control it easily; but if it is bright scarlet, and spurts out in jets, some artery has been wounded. If the wound is a gunshot one, and received in the trunk, proceed thus:

Take the adhesive plaster and cut a piece from it large enough to cover the wound well, and then apply it over the wound so as to prevent the flow of blood or entrance of air; or take a rag and shape it in a pleget, and tie it on the wound firmly with a bandage or handkerchief. If internal hemorrhage occurs nothing can be done—the patient will die. (See Gunshot Wounds.)

If the wound is in the arm or leg you can always do something.

If the blood flows from a vein, cold water, or raising the arm or leg and employing pressure will stop the flow. If you are not successful, apply Monsel's solution, which will cause the blood to coagulate. When the flow of blood has ceased, apply a bandage. If the blood comes out in jets, you may know that an artery is wounded and a surgeon required immediately; but in such cases instantly apply the Spanish windlass, which is made by tying a handkerchief around the limb and twisting it with a stick until the hemorrhage ceases. Be careful, however, to apply the windlass above the wound, toward the heart.

In ordinary wounds, cuts, etc., draw the edges together with adhesive plaster and put on cold water dressings.

Gunshot Wounds.—"Always look at your gun, but never allow your gun to look at you," or any one else. Wounds made by a gun or pistol shot are frequently more easily prevented than cured. In case of a wound of this character the first thing to be done is to stop the flow of blood, if possible. If the wound is in a limb, this can usually be accomplished by applying a ligature above the wound, and by thrusting a portion of a silk handkerchief into it. If an artery has been severed the flow of blood must be stayed by hard and constant pressure upon it. If possible, the patient should be quickly and quietly removed, placed on a bed and kept quiet until a surgeon arrives. If there is much prostration from the shock and loss of blood, the strength should be kept up by artificial stimulants and plenty of fresh air allowed. In all cases the ball or shot must be extracted and the wound thoroughly cleansed, or it cannot be expected to heal. Frequent bathing of the part with warm water will help to keep down the inflammation and assist nature greatly. Give mild nourishment and cooling drinks; keep the bowels open.

Bandages—How to Make and Apply Them.—Bandages are strips of calico, linen, flannel, muslin, elastic webbing, bunting or some other substance, of various lengths, such as three, four, eight, ten or twelve yards, and one, one and a half, two, two and a half, three, four or six inches wide, free from hems or darns, soft and unglazed. They are better after they have been washed. Their uses are to retain dressings, apparatus, or parts of the body in their proper positions, support the soft parts and maintain equal pressure.

Bandages are simple and compound. The former are simple slips rolled up tightly like a roll of ribbon. There is also another simple kind, which is rolled from both ends—this is called a double-headed bandage. The compound bandages are formed of many pieces.

Bandages for the head should be 2 inches wide and 5 yards long; for the neck, 2 inches wide and 3 yards long; for the arm, 2 inches wide and 7 yards long; for the leg, 2½ inches wide and 7 yards long; for the thigh, 3 inches wide and 8 yards long, and for the body, 4 or 6 inches wide and 10 or 12 yards long.

To apply a single-headed bandage, lay the outside of the end next to the part to be bandaged, and hold the roll between the little, ring and middle fingers and the palm of the left hand, using the thumb and fore-finger of the same hand to guide it and the right hand to keep it firm, and pass the bandage partly round the leg toward the left hand. It is sometimes necessary to reverse this order, and therefore it is well to be able to use both hands. Particular parts require a different method of applying bandages, and therefore we shall describe the most useful separately; and there are different ways of putting on the same bandage, which consists in the manner the folds or turns are made. For example, the circular bandage is formed by horizontal turns, each of which overlaps the one made before it; the spiral consists of spiral turns; the oblique follows a course oblique or slanting to the center of the limb; and the recurrent folds back again to the part whence it started.

Circular bandages are used for the neck, to retain dressings on any part of it, or for blisters, setons, etc.; for the head, to keep dressings on the forehead, or any part contained within a circle passing round the head; for the arm, previous to bleeding; for the leg, above the knee; and for the fingers, etc.

To confine the ends of bandages some persons use pins, others slit the ends for a short distance and tie the two strips into a knot, and some use a strip of adhesive plaster. Always place the point of a pin in such a position that it cannot prick the patient or the person dressing the limb, or be liable to draw out by using the limb; therefore, as a general rule, turn the head of the pin from the free end of the bandage, or toward the upper part of the limb. The best mode is to sew the bandage on. A few stitches will hold it more securely than pins can.

The oblique bandage is generally used for arms and legs, to retain dressings.

The spiral bandage is generally applied to the trunk and extremities, but is apt to fall off even when very carefully applied; therefore, we generally use another, called the recurrent, which folds back again.

The recurrent bandage is the best kind of bandage that we can apply for general purposes. The method of putting it on is as follows: Apply the end of the bandage that is free, with the outside of it next the skin, and hold this end with the finger and thumb of the left hand, while some one supports the heel of the patient; then with the right hand pass the bandage over the piece you are holding, and keep it crossed thus until you can place your right forefinger upon the spot where it crosses the other bandage, where it must be kept firm. Now hold the roll of the bandage in your left hand, with the palm turned upward, and taking care to keep that part of the bandage between your right forefinger and the roll in your left hand, quick slack. Turn your left hand over, and bring the bandage down upon the leg; then pass the roll under the leg toward your right hand, and repeat this until the leg is bandaged up to the knee, taking care not to drag the bandage at any time during the process of the bandaging. When you arrive at the knee pass the bandage round the leg in circles just below the knee, and pin as usual. Bandaging is very easy, and if you once see any one apply a bandage properly, and attend to these rules, there will not be any difficulty; but bear one thing in mind, without which you will never put on a bandage even decently, and that is, never to drag or pull at a bandage, but make the turns while it is slack, and you have your right forefinger placed upon the point where it is to be folded down. When a limb is properly bandaged the folds should run in a line corresponding to the shin-bone. Use, to retain dressings and for varicose veins.

A bandage for the chest is always placed upon the patient in a sitting posture; and it may be put on in circles or spirally. Use in fractures of the ribs to retain dressings and after severe contusions.

A bandage for the belly is placed on the patient as directed in the last, carrying it spirally from above downward. Use, to compress the belly after dropsy, or retain dressings.

The hand is bandaged by crossing the bandage over the back of the hand. Use, to retain dressings.

For the head, a bandage may be circular or spiral, or both; in the latter case, commence by placing one circular turn just over the ears; then bring down from left to right, and round the head again, so as to alternate a spiral with circular turn. Use, to retain dressings on the head or over the eye; but this form soon gets slack. The circular bandage is the best, crossing it over both eyes.

For the foot, place the end just above the outer ankle, and make two circular turns to prevent its slipping; then bring it down from the inside of the foot over the instep, toward the outer part; pass it under the sole of the foot, and upward and inward over the instep toward the inner ankle, then around the ankle and repeat again. Use, to retain dressings to the instep, heel or ankle.

For the leg and foot, commence and proceed as directed in the preceding paragraph; then continue it up the leg, as ordered in the recurrent bandage.

As it sometimes happens that it is necessary to apply a bandage at once, and the materials are not at hand, it is desirable to know how to substitute something else, that any one may apply with ease. This is found to be effected with handkerchiefs, and an experienced surgeon (Mr. Mayor) has paid great attention to this subject, and has brought it to much perfection. It is to him, therefore, that we are indebted for many of these hints.

Any ordinary handkerchief will do; but a square of linen folded in various shapes answers better. The shapes generally required are as follows: The triangle, the long square, the cravat, and the cord.

The triangular handkerchief is made by folding it from corner to corner. Use, as a bandage for the head. Application—Place the base around the head and the short part hanging down behind; then tie the long ends over it.

Abrasions.—Pyroxyline, 200 grs.; stronger ether, 12½ ozs.; alcohol, 3½ ozs. Mix the ether and alcohol in a suitable bottle, add the proxyline and dissolve. The above preparation will be found very useful as a dressing for abrasions and wounds.

Abscesses.—Take white paint and apply it gently with a brush; or else tincture of arnica, used in the same manner. Apply poultices of linseed meal. Care should be taken not to open an abscess too soon. Dress with spermaceti ointment.

Abortion—To Prevent.—Fluid extract viburnum prunifolium, 1 oz.; simple syrup; mix. Dose—A teaspoonful every 2 or 3 hours.

Chilblains.—Inflammation of the skin, owing to sudden change to or from a frosty temperature, occurs usually in females or children with feeble circulation. A congestive stage and ulcerated or broken stage, is plainly marked. It will be found that all the symptoms are aggravated by warmth and luxurious diet, and one feels the trouble increasing toward eveing. **Treatment.**—Take sulphate of copper, 3 grs.; water, 1 oz.; mix; apply to the affected parts. Or, tincture of iodine, 1 oz.; glycerine, 1 oz.; mix; paint the affected part; take regular and free exercise, plenty of fresh air, healthy living. A few drops of laudanum at night would help the circulation.

How to Distinguish a Fracture of the Shoulder from a Dislocation.—In a dislocation there is no crepitus; in a fracture there is. In a fracture the bone when reduced will not remain in place. In dislocation it will. In dislocation the patient cannot place the hand upon the opposite shoulder; in fracture he can. In dislocation forward, the arm is shortened; in fracture, the arm is lengthened.

In dislocation, first return the bone to its natural position. Let this be done as early as possible, and the sooner the better. One of the great obstacles in the way of reducing a dislocation is the contraction of the muscles. The reduction of the dislocation is generally performed while the patient is under the influence of chloroform or ether, as it has a tendency to relax the muscles. In moderate cases, however, continuous and firm pulling upon the limb will suffice. After the reduction has been accomplished the limb should be kept perfectly quiet. When there is much pain or swelling, hot fomentations should be applied, or a hot shower upon the limb may be used.

Dislocation of the Jaw.—The jaw is often thrown out of place by yawning, convulsions or blows on the chin.

It is usually recognized by the chin being thrown to the opposite side, if the displacement occurs but on one side. In wide gaping of the mouth the dislocation occurs upon both sides at once.

Treatment.—Seat the patient upon a low stool, stand in front of him, and then press your thumbs upon the last molar, or grinding teeth, very firmly. Be careful, however, to have your thumbs well protected with wrappings. Make a downward pressure. When you hear a snap, it is an indication that the bone is in its natural position. Confine the chin for a week or ten days by a bandage.

Dislocation of the Elbow.—When the elbow is dislocated backward, the most common form, the point of the elbow will be found projecting more than naturally, and it will be impossible to bend the arm more than to a right angle, though it may be drawn out without pain. This dislocation can generally be reduced, very easily, by simply placing the knee in the bend of the elbow and bending the arm around the knee, while pulling upon it with considerable force. After the dislocation is reduced the arm should be placed in a sling. Hot fomentations should be applied to relieve soreness, and if inflammation threatens cool or ice compresses should be used as much as possible.

Dislocation of the Hip.—The simplest plan of treating dislocation of the hip is that known as the automatic method. The patient lies upon the floor on his back. The operator raises the injured limb to a right angle, and places the foot of the patient between his legs in such a way that the back of the foot rests against his sacrum. The limb is then firmly grasped just below the knee, and the patient is lifted until the hip is raised from the floor. The body should be held in this position for a minute or two, by the end of which time the head of the femur will be heard to click into its socket. In case the effort is not successful, both legs should be treated in the same way at once. If neither effort is successful, after several trials, proceed to employ the following method: Let the operator with one hand grasp the affected limb by the ankle and bend the knee nearly to a right angle, placing the other hand just below the bend of the knee. The knee should now be carried outward, the limb being also twisted in the same direction, and then brought slowly down to its natural position.

Dislocation of the Knee-Cap.—This may be dislocated in various directions. It is characterized by the leg being stretched and a prominence formed by the patella in an abnormal situation.

Treatment.—Raise the patient's leg and rest it upon your shoulder. While in this position force the bone into its place with the hand.

Dislocation of the Ankle.—This may be forward, backward, inward, and outward, and are the results of severe force. The bones' ends are usually fractured at the same time. It is a very serious accident, and when it occurs to patients whose constitutions are bad, amputation may often be necessary.

Treatment.—Reduction is effected by bending at the knee, and while in that position drawing the foot forward.

In all cases of dislocation and fracture communicating with joints, the danger is anchylosis or stiffness of the joints. This is to be obviated by what is called passive motion, which is to be instituted in all cases a few weeks after the accident. It is accomplished by taking hold of the limb and moving it in natural directions, as far as consistent, and repeated after suitable intervals. The patient is to be enjoined also when practicable to exercise his limb at the wounded articulation. There are many other fractures and dislocations that I have not spoken of, for the reason that they are all so serious that the treatment should only be attempted by those having the proper anatomical knowledge and surgical skill.

Dislocation of the Shoulder.—This may be displaced in three directions, viz: inward, downward and backward. By comparing the injured with the sound shoulder you may be able to tell that it is a dislocation. Where the head of the bone ought to be you will find a depression, and you will most likely find a tumor, near the breast, in the armpit, or toward the back, according to the manner of dislocation.

Treatment.—Lay the person on his back, and sit down beside him on the injured side, and put a round pad in the armpit. Then take off your boot, put your foot against the pad, grasp the patient's arm or tie a towel to it, put it around your neck, and pull in that way. Then while you pull at the arm and push with your foot, tell the patient to turn around, or you may carry the arm across the chest. While this is done, a snap is heard, and the bone is in its proper place.

Dislocation from Pulling the Arm.—This is a form of displacement which occurs in young children, in consequence of their being pulled forcibly by the arm. There is still some question among surgeons as to the exact nature of the dislocation, some claiming that the dislocation is at the wrist, and others at the elbow joint. It is probable that either joint may be affected. The hand will be found turned upon the palm, the patient being unable to turn it backward.

Treatment.—All that is necessary is to grasp the hand and forcibly turn it upon the back, which will cause the bones to resume their proper position.

Fracture of Collar-Bone.—The collar-bone is generally fractured by indirect violence, such as a fall on the point of the shoulder. It is generally broken near the middle of the bone.

Symptoms.—The patient is usually found supporting the arm with the hand, leaning toward the injured side. The shoulder falls downward, is sunken and drawn toward the breastbone.

Treatment.—Push the shoulder backward and press upon the seat of fracture until you get it in its place. Then make a wedge-shaped pad and put it in the armpit, and secure it there by a bandage which surrounds the chest; then bring the elbow to the side and place the forearm so tightly in that position that it cannot move. If you follow these simple instructions the cure will be a good one.

Dislocation of the Bones of the Hand.—Displacement of the bones of the carpus or body of the hand rarely occurs. The bones of the fingers are occasionally dislocated, but more frequently the thumb is dislocated backward.

Treatment.—Make extension in a curved line by means of a narrow bandage or tape, firmly applied by a close-hitch upon the finger.

Dislocation of the Ribs.—Dislocation of the ribs from the spinal column may sometimes occur by severe falls or blows upon the back, and from the breastbone by violent bending of the body backward. Great pain and difficulty in breathing follow in either case.

Treatment.—Tell the patient to take a deep inspiration, and slightly bend the body backward, and while he does this make some pressure on the projecting point. After reduction treat the same as for broken ribs.

Dislocation of the Wrist.—This is a very rare displacement, but can easily be discovered by an unnatural position of the hand and total inability to move the wrist joint.

Treatment.—All that is required is firm pulling upon the hand, which causes the displaced bones to slip into position.

Fracture of the Humerus.—The humerus is the bone between the elbow and the shoulder. A fracture of this kind is usually the result of direct muscular action. If, as is usual, the fracture is transverse, there is little displacement.

Treatment.—Place the bones in apposition, and in order to be sure you are right, compare it with a sound arm. Then take four splints and put one in front, one behind and one on each side of the arm. Secure these with bandage, and the work is done.

Apparent Death from Lightning.—Slip the clothes from the body and apply cold water in large quantities by throwing it over the body briskly; at the same time apply continual friction; administer internally brandy, whisky, hartshorn, or any stimulant you may have on hand. Electricity answers well if it can be procured; administer gentle shocks to the chest until signs of life seem evident. Inflate the lungs by method given under instruction for drowned persons.

Apparent Death from Noxious Vapors.—Men who are employed in underground workings often suffer death from inhaling bad gases found at the bottom of old wells and underground excavations. Before commencing work it is always a good plan to lower a lighted candle to the bottom of a suspected well; if the light is extinguished you may be sure it is not fit to go into. If, however, a person has ventured down and been overpowered, place the body in the open air, dash cold water over the face, head and neck, turn the body gently but completely on the side.

Apparent Death from Hunger.—Do not hasten to administer food or a fatal result may follow, but first inject with a syringe a small quantity of mutton broth or beef tea, and if the patient can swallow administer in teaspoonful doses warm milk; then a little brandy, and so gradually increase the nourishment as the patient's strength increases. Feed the patient about every 10 or 15 minutes.

Choking.—This is an accident that may happen at any moment while in the act of eating. Children, too, are often addicted to putting substances in their mouths, as coins, buttons, etc., as well as attempting to swallow food without properly masticating it.

Treatment.—Slap the patient on the back smartly or press a finger immediately down the throat. Distend the gullet with a draught of water; or, better still, warm water and mustard, which will act as a strong emetic.

Fracture of the Bones of the Forearm.—There are two bones here—the radius and ulna. Both bones are sometimes fractured together. The cause is generally direct violence, or, more rarely, a fall on the palm of the hand.

Treatment.—Examine the fracture, and, if found oblique and the arm shortened, draw the arm forward and press the muscles into the interosseus space (the space between the bones). Then take two splints, well padded on the inside, reaching from the elbow beyond the fingers; put one on the inside, reaching from the elbow beyond the fingers, and the other on the outside of the forearm. Secure with a bandage. The arm should be carried in a sling.

Fracture of the Leg.—There are two bones below the knee, called the tibia and the fibula. Either one or both bones of the leg may be broken. The tibia, or inner bone of the leg, is most frequently fractured, on account of being less protected by muscles. When the tibia is broken it can be very easily discovered by feeling along the shin. The pain is not very severe, but the limb is partially bent and the patient has no power to extend it. Sometimes the outer bone of the leg is broken at a point about three inches above the ankle, and the inner ankle is either broken or separated from the heel-bone by laceration of the ligaments. This is what is known as Potts' fracture.

Treatment.—When both bones are broken, or when the fibula alone, or when the upper part of the fibula is fractured, the best and most complete apparatus is the fracture-box and pillow. Make a box considerably wider than the leg, with only one end-board, and that considerably higher than the sides of the box. Of course, the box must have no lid. A piece of cloth a yard long and about 2 feet wide should be placed in the box, in such a way as to cover the bottom and sides, the edge of the cloth hanging over outside of the box. A quantity of dry bran or sand should next be placed in the box, a sufficient amount being poured in to form a cushion for the foot and lower part of the leg, to the shape of which it should be moulded. Bran or sand should be poured in around the sides of the leg. Bran or sand is necessary only in cases in which there is a wound, which is very frequent in this form of practice. Secure the foot to the foot-board, so as to prevent lateral inclination. Ordinary splints of pasteboard or other material may also be successfully used in case of fracture of the lower end of the fibula, in which the foot is turned to one side. In bandaging great care must be exercised that the work is done smoothly and allowance made for the swelling which occurs.

If splints are used they should be carefully stuffed and applied to the inner side of the limb when the foot is turned and firmly strapped down in such a manner as to bring it into its natural position.

Fracture of the Bones in the Hand, Foot or Ankle.—Fractures of the carpal bones are generally compound. When it is a simple fracture little or no treatment is required beyond rest. The solid bones are generally wounded by accidents that tend to crush them, as threshing machinery, heavy weights falling on them, etc.

Treatment.—Dress the open wounds as any other, then cover the whole hand in several folds of rag or handkerchief dipped in water.

Fracture of the Cap of the Knee.—The knee-pan, the cap of the knee, the patella, are but different expressions for the same thing.

The cap of the knee may be broken vertically or transversely. In some cases it is shattered by a severe fall, muscular contractions, or direct violence. There is no crepitation felt in this fracture.

Treatment.—Keep down the swelling with lotions, and the fragments kept together by adhesive plaster. Bind the leg to a long splint placed on the back of the leg.

Fracture of the Ribs.—Accidents of this kind often happen by direct violence, the ends being driven inward; sometimes a severe squeeze against a wall, when the ribs give way and the ends are driven outward.

Symptoms.—Pain at the seat of injury; increased pain on taking a deep inspiration; arrest of the movements of the ribs in breathing. By bending the head and listening you may detect crepitus (a grating sound), and may also detect the fracture by passing one hand over the seat of injury and the other on the opposite side of the chest.

Treatment.—In a simple fracture the best plan is to apply strips of plaster 2 inches broad, stretching from the spine behind to the sternum in front and extending some inches above and below the site of the fracture. By this means the ribs are kept perfectly at rest on the injured side.

INJURIES TO THE EYES.

By a Blow.—A severe blow on the eye will frequently cause hemorrhage to take place, between the choroid and the retina. If the hemorrhage is severe, all useful vision is lost, but if slight, recovery may be looked for with a blind spot corresponding to the detached portion of the retina.

Treatment.—The treatment should consist of a couple of leeches to the temple, ice over the eye, atropine drops and perfect rest to both eyes.

By Lime or Mortar.—If seen immediately should be treated by washing out with a tepid solution of vinegar, say 1 teaspoonful of vinegar to 16 of water. The upper lid should be averted and all portions remaining in the eye carefully removed; a drop of castor oil may then be put in, and the eye closed with a pledgit of wet lint.

By Acids.—When the eye is injured by a strong acid it should be syringed out with an alkaline solution.

Formula.—Bicarbonate of soda, 5 grs.; water, 1 oz.; mix and apply.

The after treatment being the same as that described above.

If the lids are injured with acid, they should be dressed with the following liniment: Linseed oil, 4 ozs.; lime water, 4 ozs.; prepared chalk, 2 ozs.; mix.

Lint dipped in this liniment should be applied over the eye and a pad of cotton wool placed over it with a bandage.

By Gunpowder.—When the eye is injured by an explosion of gunpowder, all the loose powder should be carefully removed with a syringe and tepid water. Examine the eye and remove all particles imbedded in it. Castor oil should then be dropped in and belladonna lotion applied.

By Pieces of Metal.—Pieces of metal and other bodies, as the fragments caused by the explosion of percussion caps and small shot, very frequently penetrate the eyeball. If the foreign body can be seen, an attempt should be made to remove it.

Treatment.—Draw down the lower lid with the forefinger of the left hand and remove by a piece of moistened paper. If the substance be under the upper lid, place a bodkin across the lid and draw back the lid so that it is completely inverted. Inflammation is very apt to occur after these accidents.

Bleeding from the Air Passages and Lungs.—Let the patient at once go to bed, and keep perfectly quiet, avoiding movement of any kind as much as possible. Administer dilute acids, in frequently repeated doses, with 5 drops of tincture of digitalis. The bowels should be kept open by means of epsom salts, in infusion of roses. Give iced drinks and let the solid ice be sucked. Mustard plasters may be applied to the chest. A small dose of morphia, say one-sixth of a grain, may be given. The cough may be allayed by the administration of any of the cough mixtures should the morphia not suffice.

Bleeding from the Nose.—Apply cold water containing ice, if obtainable, or a piece of cold metal to the back of the neck. If this will not suffice, inject with a syringe a solution of alum or sulphate of zinc (10 grains to the ounce), or snuff up the nostrils some gallic acid, powder of pomegranate, kino or catechu, mixed with starch. A plug of lint may also be dipped in either of the above powders and pushed up the nose.

To Check Nose Bleed.—Take Monsel's iron solution and apply it with a feather; the wing feather of a common fowl is most readily obtained. The barbed end, of course, is dipped into the solution and pushed rapidly back into the nostril and turned once or twico in the fingers. In a few seconds the feather refuses to yield to pushing or pulling, showing that a firm clot has been formed. The projecting end is clipped so as not to inconvenience the patient, enough of it being left to be easily seized and removed when required. If one feather should fail to stop the blood, a second feather may be introduced in the same manner, along side of the first one. At the end of a certain time the clots slough away from the nasal walls and may be removed without trouble.

Sunstroke.—Sunstroke may with much propriety be called congestion of the brain, as the injury done to the brain is much the same, except it may be that no clot is found there.

Harvest hands and all persons exposed to the extreme heat of the sun are liable to be stricken down, and as a prevention ought to wear light clothing.

The symptoms are dizziness, extreme thirst, violent throbbing of the arteries, both corotid and temporal; insensibility ensues by a convulsive shivering.

Treatment.—Carry the patient to a shady place, and instantly apply, copiously, cold water, or, what is better, pounded ice in a bag, to the head. Rub the legs briskly with turpentine. Inhalation of ammonia or hartshorn is beneficial, and carbonate of ammonia may be given internally. This treatment must be kept up until the patient is better or death ensues. When the patient is sufficiently recovered give him a brisk cathartic and keep him from exposing himself to the sun for a few days.

Stabs.—They are treated as common wounds by first stopping the blood if possible by the use of cold water and a sponge; and the edges brought together with strapping and bound up. Keep the patient quiet.

Ingrowing Nails.—The best thing to be done is simply to get a common saw file or a piece of glass, and either file or scrape the arch of the nail quite thin; by this means the center of the nail will eventually be rendered so thin that it may be readily bent. Now raise the sides of the nail and insert in the groove between it and the flesh a thin layer of cotton wool. Nails should never be clipped at the corners, but cut straight across the top, if anything, slightly scooped in the middle.

Apparent Death from Cold.—A person apparently dead from cold must not be taken to a hot fire; that would be very wrong. The best thing you can do is to rub the body of the person with snow, ice or cold water, and after a time apply a very gentle heat, and proceed according to the directions laid down in the article on drowning.

Apparent Death from a Blow or Fall.—In an emergency of this kind prompt means must be resorted to. Place the patient on a couch in a recumbent position, with the head raised. Dash cold water on the face, and administer stimulants such as brandy, hartshorn, etc., and apply warmth to the feet and legs. Keep the patient quiet.

Cut Throat.—In cut throat the first thing to be done is to search for all bleeding vessels, veins as well as arteries, and either twist or tie them. The danger is from hemorrhage, suffocation from blood clot, or by entrance of air into a divided vein. If the blood is of a dark color and gushes out, there is a vein severed; but if the blood is red (arterial blood), and spurts, an artery has been severed and must be tied. In case of the severance of a superficial vein, place the fingers on the course of the veins, a little above the cut, between it and the head, and keep a firm though gentle pressure. If the trachea (windpipe) is entirely divided, the divided edges may be kept together by some sutures. On no account apply sutures to the external wound. Place the patient in bed with the shoulders well raised, and the head thrown forward on the chest, and secured there by tapes passing from a nightcap to a roller round the chest. Of course you would call a doctor as soon as possible.

How to Act When the Clothes Take Fire.—The Scientific American says three persons out of four would rush right up to the burning individual and begin to paw with their hands without any definite aims. It is useless to tell the victim to do this or that, or call for water. In fact, it is generally best not to say a word, but to seize a blanket from a bed or a cloak or any woolen material at hand, hold the corners as far apart as you can, stretch them out higher than your head, and running boldly to the person, make a motion of clasping in the arms, mostly about the shoulders. This instantly smothers the fire and saves the face. At the same time throw the unfortunate person on the floor. This is an additional safety to the face and breath, and any remnant of flame can be put out more leisurely. The next instant immerse the burnt part in cold water, and all the pain will cease with the rapidity of lightning. Next get some common flour and cover the burnt parts thickly with it, put the patient to bed and do all that is possible to soothe until the physician arrives. Let the flour remain until it falls off, and a beautiful new skin will be found. Unless the burns are deep, no other application is needed. The dry flour for burns is the most admirable remedy ever proposed, and the information ought to be imparted to all. The principle of its action is that, like water, it causes instant and perfect relief from pain, by totally excluding the air from the injured parts. Spanish whiting and cold water of a mushy consistency are preferred by some. Spread on the flour until no more will stick, and cover with cotton batting. Within the last few months the medical profession has used the bicarbonate of soda (bread soda) as an application to burns and scalds. Its efficacy is really wonderful. Try it.

Cure for Drunkenness.—There is a famous prescription in use in England for the cure of drunkenness, by which thousands are said to have been assisted in recovering themselves. The receipt came into notoriety through the effects of John Vine Hall, commander of the steamship Great Eastern. He had fallen into such habitual drunkenness that his most earnest efforts to reclaim himself proved unavailing. At length he sought the advice of an eminent physician, who gave him a prescription which he followed faithfully for seven months, and at the end of that time had lost all desire for liquor, although he had for many years been led captive to a most debasing appetite. The recipe, which he afterward published, is as follows: Five grs. of sulphate of iron, 10 grs. of magnesia, 11 drachms of peppermint water; use twice a day. This preparation acts as a tonic and stimulant, and so partially supplies the place of accustomed liquor and prevents the absolute physical and moral prostration that follows a sudden breaking off in the use of stimulating drinks.

The following is said to be a cure for the appetite or disease of drunkenness: Five grs. of sulphate of iron, 10 grs. of magnesia, 11 drachms of peppermint water, and 1 drachm of spirit of nutmeg; twice a day.

To Extract Substances from the Nose.—When a child has any substance wedged in its nostrils, press the vacant nostril so as to close it, and apply your lips close the child's mouth and blow very hard. This simple method will generally force the substance out of the nostril.

Partial Dislocation of the Neck.—To reduce this dislocation the unhappy person should immediately be laid on his back upon the ground, and the operator must place himself behind him, so as to be able to lay hold of his head with both hands, while he makes a resistance by placing his knees against the patient's shoulders. In this posture he must pull the head with considerable force, gently twisting it at the same time, if the face be turned to one side, till he perceives that the joint is replaced, which may be known from the noise which the bones generally make when going in, the patient beginning to breathe and the head continuing in its natural posture.

To Stop Bleeding from Wounds.—Bleeding from a wound on man or beast may be stopped by a mixture of wheat flour and common salt in equal parts, bound on with cloth. If the bleeding be profuse, use a large quantity—say from 1 to 3 pints. It may be left on for hours, or even days, if necessary. In this manner the life of a horse was saved which was bleeding from a wounded artery. The bleeding ceased in 5 minutes after the application. It was left on for three days, when it worked loose, and was easily removed from the wound, which very soon healed.

Another Remedy.—Take of brandy of common spirits, 2 ozs.; Castile soap, 2 drachms, and potash, 1 drachm; scrape the soap fine and dissolve it in the brandy, then add the potash; mix well, and keep in a close phial. When applied let it be warmed and dip pledgets of lint, and the blood will immediately congeal. It operates by coagulating the blood a considerable way within the vessel. A few applications may be necessary for deep wounds and where limbs are cut off.

Another Remedy.—Take the fine dust of tea or the scrapings of the inside of tanned leather, and bind it close upon the wound, and the blood will soon cease to flow. These articles are at all times accessible, and easy to be obtained.

Drowning.—Rules to be Observed for the Recovery of Persons Apparently Drowned.—The body should be moved with all speed to the nearest house, unless too far, and after being stripped and dried it should be placed in bed, between blankets. the head being slightly raised, while hot bricks and bottles are being got ready to place to the feet and abdomen. Artificial respiration should be commenced by means of a bellows until a physician arrives with a proper apparatus. Mustard poultices should be applied to the abdomen, friction with hartshorn to the chest and an injection administered, composed of turpentine and gruel or hot water and spirits. Hartshorn to the nose is useful. When signs of animation begin to appear, a teaspoonful of brandy and water should be given, but do not force it down the throat. It is foolish to attempt to bleed.

The late Dr. Valentine Mott gives the following directions: "Immediately as the body is removed from the water, press the chest suddenly and forcibly downward and backward, and instantly discontinue the pressure. Repeat this violent interruption until a pair of bellows can be procured. When obtained, introduce the muzzle well upon the base of the tongue. Surround the mouth with a towel or handkerchief and close it. Direct a bystander to press firmly on the projecting part of the neck (Adam's apple), and use the bellows actively; then press upon the chest, to expel the air from the lungs, to imitate the natural breathing. Continue this at least an hour, or until signs of natural breathing come on. Wrap the body in blankets, place it near a fire, and do everything to preserve the natural warmth as well as to impart an artificial heat if possible. Everything, however, is secondary to inflating the lungs. Send for a medical gentleman immediately, and avoid all friction until respiration shall be in some degree restored."

Frozen Limbs.—When any part of the body is frozen it should be kept perfectly quiet till it is thawed out, which should be done as promptly as possible. As freezing takes place from the surface inwardly, so thawing should be in the reverse order, from the inside outwardly. The thawing out of a portion of flesh, without at the same time putting the blood from the heart into circulation through it, produces mortification; but by keeping the more external parts still congealed till the internal heat and the external blood gradually soften the more interior parts, and produce circulation of the blood as fast as thawing takes place, most of these dangers are obviated.

Raw cotton and castor oil have restored frost-bitten limbs when amputation was thought to be necessary to preserve life. It is said to be an infallible cure.

For a Fish Bone in the Throat.—If any person should become choked with a fish bone and cannot cough it out or otherwise easily remove it from the throat, let him take the white of three or four eggs, and if that does not carry the bone down into the stomach (and perhaps it would be best that it should not carry the bone down), let him take immediately from a teaspoonful to a tablespoonful of ground mustard in a little warm water, which will be pretty certain to make him vomit almost immediately, and as the eggs are thrown from the stomach they will be very likely to carry the bone from the throat. If no mustard is on hand, take some other quick emetic.

Snake Bite.—It is said that alum is a sure antidote to the bite of a rattlesnake. Take a piece about the size of a walnut and dissolve and drink it. This, it is said, will cure either man or beast. It would be a good idea for those who are in the habit of going into the woods or the prairies to carry a piece of alum in their pockets, so as to be in readiness for the emergency of a bite. It is a simple remedy, but we have no doubt of its efficacy.

Another.—The New Albany Bulletin says: We learn that a lady resident of this county was bitten by a snake of the copperhead kind, in the foot, a few days since, which caused such excruciating pain as to give her friends serious apprehension for a time of her recovery. An experiment was, however, resorted to, which resulted in a cure. The snake was killed, cut to pieces and bound to the wound, which in a short time extracted the poison, and the lady is now convalescent.

Cure for Rattlesnake Bites and Other Poisonous Creatures.—Indigo, 4 drachms; gum camphor, 8 drachms; alcohol, 8 ozs.; mixed and kept in closed bottles. Apply to the wound and the cure is soon completed.

Another.—Take green hoarhound tops, pound them fine, press out the juice, let the patient drink a tablespoonful of the juice morning, noon and night, or three times in 24 hours. Apply the pounded herbs to the bite; change the same twice a day. The patient may drink a spoonful of sweet olive oil. This never fails to cure.

MANAGEMENT OF CHILDBIRTH.

BY THE PUBLISHER.

Management of a Natural Labor.—We would not advise an incompetent person to undertake the duty of midwife; but as labor may sometimes take place in railroad cars and in places far away from medical assistance, it will be the duty of the writer to proceed to prescribe his method of conducting a case of natural labor.

The midwife should have with her a good syringe, a pair of scissors, some stout pins, for the binder, a soft elastic catheter, spirits of ammonia, and ergot of rye in the form of the fluid extract. As soon as you are called have the lying-in woman quietly informed that the midwife wishes to see if all is going on as it should. You then tell the patient to turn on her left side, with the head and shoulders low down on the bed, and the thighs and knees drawn up. Her back should be placed toward the right edge of the bed.

If labor pains are present they may be known by what is called "come and go" pains, which at first are moderate and wide apart, but finally become more intense and succeed each other at shorter intervals—often causing cries and gestures, during a pain. Pass the hand, which has been previously smeared with lard, cold cream, oil or vaseline, to the mouth of the vagina. The fore finger of the right hand is then guided along up the vagina, directing its tip backward towards the hollow of the sacrum, where the mouth of the womb will be felt. If the os (mouth of the womb) is then found to be soft and dilatable, the chances are in favor of an easy and expeditious labor. If, on the contrary, it feels hard and rigid, the labor is likely to be slow.

The examination having been made, and the labor found to be all right, it is best to allow the patient to get off the bed and walk about the room, resting herself at intervals on a chair and taking some refreshment. It is of advantage for the patient to walk about in the commencement of labor, as the entrance of the head into the pelvis is favored.

When the pains come quite frequently again, introduce your hand, and as soon as you find that the os uteri is fully dilated, the time has arrived to rupture the membranes or bag of waters, a sort of fluctuating tumor (unless they have already burst). This may be done with your finger nail, or by pressing a sharp nail against the membranes while they are distended by the water during a pain. If you have withdrawn your hand you may again insert it, and you will most likely find the head about descending into the vagina. This is what is called the first stage of labor.

The Position in Which to Place the Patient During the Second Stage.

In the Old Testament, women are described as being delivered in a sitting posture, and a labor chair was used in France, in 1573. In some parts of Germany, labor chairs are still in use.

A gum coat, or water-proof covering, should be laid over the bed, and covered with one or two sheets folded to receive the discharge of blood and water, which comes from the woman during the second and third stages of labor. In order to assist the woman in expulsive pains, give her your hand to pull on, or, if her husband be present, let her press him around the neck. This will greatly aid her; or, you may tie a sheet to the bed post and let her pull at that.

As soon as the child's head is born, you must examine whether the cord be twisted round the child's neck. If it is so, it should be gently drawn down, and slipped over the child's head. If it should be too tightly encircling the neck to admit of being drawn down over the head, or if the head is being drawn down too quickly, then the encircling loop should be opened a little, to let the body pass through it. But a third case may happen; that is, the encircling loop may be so tight as not to admit of being drawn over the head, or of opening to let the body pass through. In such a case, the child is in danger of being strangled; it gets blue and black in the face and its body, held back by the cord, cannot be born. The remedy here is to get a finger under the loop, to guide by it one blade of a pair of scissors, and cut the loop. Then both cut ends should be held by the fingers, or tied, if there is time. Of course, when the child is born the cord can be tied again at the proper place.

The cord may be twisted twice, or even three times, around the neck. In such a case it will be the more likely to require to be divided.

As soon as it is born you will probably hear the child gasp and cry; this is caused by the sudden shock it receives from exposure to the air, causing pain by the sudden expansion of the lungs. A gentle pat on the back or blowing and sprinkling water on its face will often excite respiration.

The cord should not be tied until the child has well breathed and cried or until the pulsations can no longer be felt in it; then separate it from the mother. To do this take a few strands of thread and tie it round the cord, not so tight as to cut through, about two inches from the navel. Next take a pair of scissors and cut the cord through about half an inch away from the ligature, not on the side, however, towards the navel; you can put two ligatures on the cord, if you like and cut between them. It is better to use blunt scissors to cut the cord, as this crushes and bruises the vessels in the cord and thus helps to prevent subsequent bleeding. It is well to examine the cut end of the cord an hour or so after the child is born in order to see if there is any escape of blood; in which case a fresh ligature should be applied.

Immediately after the child is born the midwife should place her hand over the woman's abdomen to secure contraction of the womb, and at the same time to ascertain if there may not be a second child in the uterus.

Then take the baby away, but be careful how you do it, or else an accident may happen. The baby is very slippery, so take it up in this way: Put its neck between the thumb and forefinger of the left hand and put the palm of the right hand under its buttocks; you then have it secure; but do not be too anxious about its safety, or you might choke it.

Now commences what is called the third stage of labor, or the placentae stage.

This important stage is, perhaps, the most dangerous to the mother, inasmuch as flooding often commences, requiring the greatest efforts of the midwife to stop it, for so long as the after-birth is still in the womb there is great danger.

The midwife, then, should place a hand over the fundus of the uterus and exert a moderate pressure upon it, if the afterbirth has not passed down into the vagina, for in some cases the expulsion of the placentae follows immediately upon that of the child, sometimes with the same pain. Usually the womb remains in a state of rest for some minutes after the expulsion of the child.

By making pressure upon the womb and at the same time pulling gently upon the cord, by no means pull so hard as to tear the cord or invert the womb. If it will not come give the patient a pinch of snuff to set up a cough; this may expel the placentae. When the placentae cannot be delivered in the way just described, the hand may be gently introduced into the uterus and passed between it and the after-birth, which is then seized and delivered by hand.

On the expulsion of the after-birth be sure and examine it to see if it is complete and if all the membranes have come away with it.

As soon as the after-birth has been removed the external genitals should be gently sponged with warm water and a warm dry napkin placed on the vulva. The soiled linen may be removed and sent out of the room.

After the delivery of the after-birth a bandage or binder should be applied to the abdomen. Do not fasten the binder too tightly, but so as to give comfortable support. The great point is that the binder should seize well below the hips, otherwise it will slip upwards and become useless. If everything has gone on well the patient may be moved to the other side of the bed and made comfortable in about half an hour. But if she is weak from hemorrhage or other cause she must be allowed to rest an hour or more undisturbed.

The child having been washed, it should be put to the breast for a few minutes. This early application of the child to the breast acts beneficially in two ways—on the child by satisfying its natural instinct to suck as well as by the first milk opening its bowels, and on the mother by securing a due and permanent contraction of the uterus. When the midwife has put the child to the breast, has found it suck, and examined the uterus and found it contracted, ascertained that there is no bleeding and found the pulse 100, she may safely leave the patient.

After Pains.—After pains are caused by the contraction of the uterus after labor. They vary in intensity in different women; in some they scarcely excite attention, in others they are most severe and distressing.

Treatment.—The best remedy is patience. They may, however, be alleviated by small doses of morphia or a few drops of laudanum. Heated cloths and warm fomentations are sometimes useful, particularly if assisted by moderate but sufficient pressure on the abdomen by means of a broad bandage. They seldom follow with severity the first birth.

Placing the child to the breast tends to prevent the occurrence of after pains by promoting early contraction of the uterus.

After pains should not be checked, unless too severe, because they tend to promote the expulsion of substances which, if retained in the womb, might decompose and set up blood poisoning.

POISONS AND THEIR ANTIDOTES.

BY THE PUBLISHER.

Poisons and Their Antidotes.—Poisons are substances of an animal, vegetable or a mineral nature, which produce effects deleterious to the animal economy when they are taken into the stomach in certain doses, and in some instances even when they are applied to the surface of the body. Many poisonous substances, however, are daily employed as medicines, and with the best results when they are administered in proper doses and with due precaution. Writers who professedly treat of poisons have arranged the substances which they regard as such according to their effect on the animal economy. They are generally classed as Irritant Narcotics and Narcotic Irritants.

Narcotic poisons have their operations confined to the brain and spinal marrow, causing headache, dizziness, sleepiness, paralysis and occasionally lockjaw.

Irritant poisons for the most part belong to the mineral kingdom. They produce, in ordinary doses, speedy vomiting and purging, accompanied by intense pain in the abdomen.

Narcotic Irritants, as the name implies, have a compound action. Soon after being swallowed they give rise to diarrhea and vomiting, and sooner or later they produce the same effects as the narcotic poisons—stupor, paralysis, etc. They are all derived from the vegetable kingdom.

Every person ought in some measure to be acquainted with the nature and cure of poisons. They are generally taken unawares and their effects are often so sudden and violent as not to admit of delay or allow time to procure the assistance of physicians.

Happily, indeed, no great degree of medical knowledge is here necessary; the remedies for most poisons being generally at hand or easily obtained and nothing but common prudence needful in the application of them. The vulgar notion that every poison is cured by some counter poison as a specific has done much hurt. People believe they can do nothing for the patient unless they know the particular antidote to that kind of poison which he has taken; whereas, the cure of all poisons taken into the stomach, without exception, depends chiefly on discharging them as soon as possible.

There is no case wherein the indications of cure are more obvious. Poison is seldom long in the stomach before it occasions sickness, with an inclination to vomit. This shows plainly what ought to be done. Indeed, common sense dictates to everyone that if anything has been taken into the stomach which endangers life it ought immediately to be discharged. Were this duty disregarded the danger arising from poisons might generally be avoided. The method of prevention is obvious and the means are in the hands of everyone.

Poisons either belong to the animal, vegetable or mineral kingdoms.

Mineral poisons are commonly of an acrid or corrosive quality, as arsenic, cobalt, the corrosive sublimate of mercury, etc.

Those of the vegetable kind are generally of a narcotic or stupefactive quality, as poppy, hemlock, henbane, berries of the deadly nightshade, etc.

Arsenic is the most common of the mineral poisons, and as the whole of them are pretty similar, both in their effects and method of cure, what is said with respect to it will be applicable to every other species of corrosive poison.

When a person has taken arsenic he soon perceives a burning heat and a violent pricking pain in his stomach and bowels, with an intolerable thirst and an inclination to vomit. The tongue and throat feel rough and dry, and if proper means be not soon administered the patient is seized with great anxiety, hiccoughing, faintings and coldness of the extremities.

On the first appearance of these symptoms give immediately from a teaspoonful to a tablespoonful (according to age) of ground mustard and the same quantity of common salt in half a pint or less of water, warm or cold, warm being the best, which usually makes the patient vomit almost immediately and which may be repeated every five or ten minutes. If no mustard is on hand give large quantities of new milk and salad oil or oil and warm water, or fresh butter melted and mixed with warm water, or if none of these are at hand three or four grains of tobacco (a small quid) will usually operate as a ready emetic. Some of these or other emetics are to be taken as long as the inclination to vomit continues or until the stomach has become entirely empty.

Lest there be any remnant of the poison, however small, or its effects, left in the stomach let the patient take a dose of the best antidote on hand, and, if nothing better is at hand, give the white of an egg or a cup of strong coffee.

Should there be any delay from any cause in administering an emetic, give immediately a dose of the best antidote you have at hand for the poison taken. It is sometimes best to give an antidote first and then an emetic, and after thoroughly vomiting and the stomach has become quieted give another portion of the antidote. But above all things give an emetic as soon as possible, as life may depend on a prompt and thorough cleansing out of the stomach.

Poisons—Mineral and Vegetable.—Arsenic (Ratsbane.)—Give an emetic; then the white (albumen) of eggs, lime water, chalk and water or calcined magnesia and the preparations of iron, particularly hydrate.

Alcohol.—Give an emetic; then dash cold water on the head and give ammonia (spirits of hartshorn).

Belladonna (Henbane).—Give an emetic; then plenty of vinegar and water or lemonade.

Corrosive Sublimate.—Give a strong solution of pearlash or salaratus if at hand; if not at hand, give the white of eggs or wheat flour and water freely and then give an emetic.

Creosote.—Give the white of eggs and then an emetic.

Laudanum.—Same as opium, which see.

Mushrooms, when poisonous.—Give an emetic, then vinegar and water, or either, freely.

Muriatic Acid.—Give an emetic, then calcined magnesia or soda and water, or salaratus and water, or any alkali.

Nitric Acid (aqua fortis).—Same as muriatic acid.

Nitrate of Potash (Nitre Saltpetre).—Give an emetic, then sweet oil or flaxseed tea or milk and water freely.

Nitrate of Silver (Lunar Caustic).—Give a strong solution of common salt and then an emetic.

Nux Vomica.—Give an emetic, then brandy.

Opium.—Give an emetic, then strong coffee and acid drinks and dash cold water on the head.

Oxalic Acid.—Give an emetic, then chalk or magnesia or soap and water freely, or these first and then an emetic.

Prussic Acid.—Give an emetic, or first give soda and water or salaratus and water, or any alkali, and then give an emetic and pour acetate of potash and common salt, dissolved in water, on the head and spine.

Sulphuric Acid.—Same as muriatic acid.

Strychnine.—Give an emetic, then oil, lard or fresh butter and gum camphor in almond mixture or pounded and mixed with warm water.

Tobacco.—Give an emetic, then stringent teas and then stimulants.

For the following poisons emetics are not recommended:

Snake Bite.—If the bite is on a limb instantly tie a cord tightly above the part bitten and then apply a cupping glass on the bite and bate it with spirits of hartshorn. Take a dose of sweet oil, drink spirits freely and take a tablespoonful of the juice of the tops of green hoarhound three time a day.

Alkalies.—Give ginger.

Ammonia.—Give lemon juice or ginger, then milk and water or flaxseed tea.

Carbonic Gas.—Remove the patient to the open air and dash cold water on the head and body; hold hartshorn to the nose and at the same time rub the chest briskly.

Lead, White Lead or Sugar of Lead.—Give alum, castor oil and Epsom salts.

Tartar Emetic.—Give tea made out of galls, Peruvian bark or white oak bark freely.

Verdigris.—Give the whites of eggs and water freely.

White Vitriol.—Give milk and water freely.

Nitre—Nitrate of Potassa (an acid mineral poison).—Symptoms.—When taken in doses of half an ounce to an ounce, which has too frequently happened from the salt being sold by mistake for sulphate of soda, it excites nausea, vomiting and hypercatharsis, bloody stools, excruciating tormina of the lower bowels, the sensation of fire in the stomach, laborious respiration, cold extremities, syncope, convulsions and sometimes death. If the patient live he may remain paralytic.

Treatment.—Empty the stomach and dilute freely with milk and bland demulcents, opium and aromatics. Give plenty of flour and water or linseed oil.

Chloride of Tin.—A corrosive metallic poison.

Symptoms.—An austere, metallic taste, constriction of the gullet, impeded respiration, violent vomiting, with cramp of the stomach and excruciating colic pains, convulsions, sometimes paralysis and death.

Treatment.—Drink copiously of milk, which appears to decompose the chloride; then excite vomiting by large draughts of tepid water; warm water bath; administer opiates.

Chloride of Antimony (Butter of Antimony).—This is a highly corrosive, poisonous liquid, varying from a light yellow to a dark red color.

Symptoms.—Severe vomiting, cramps, faintness, purging, colicky pains, etc.

Treatment.—Give plenty of strong tea or an infusion of oak bark, elm, sloe, currant or blackberry bark or leaves.

Carbonate of Lead.—An astringent metallic poison.

Symptoms.—Obstinate costiveness; violent colic, with retraction of the abdomen; vomiting; the pulse small and hard; laborious breathing and tremors; the gums assume a blue tinge.

Treatment.—Administer cathartics, particularly castor oil and sulphate of magnesia combined with opium or extract of hyoscyamus; use the warm bath and throw up repeatedly injections of mutton broth and demulcents. The patient should dilute very freely with mucilaginous liquids. Some alkaline sulphate, mixed with vinegar or some weak vegetable acid, such as lemon juice, will prove highly useful. Emetics and the stomach-pump should also be employed. When convalescent he should live almost entirely on a milk diet. If paralysis of the limbs continue it should be treated with strychnia.

As the symptoms produced by poisoning by lead put on one of the three forms, irritant poisoning, lead colic and paralysis, our treatment must be governed accordingly. In cases of irritant poisoning we should immediately administer dilutents holding in solution some sulphate, as of soda, magnesia or potassia, so that a sulphate of lead may be formed. Vomiting should be excited by sulphate of zinc, tickling the throat, or the contents of the stomach may be evacuated by the stomach-pump. In lead colic the best remedy is alum, though it is generally treated successfully by means of purgatives and opiates, with venesection, leeching, etc. In lead palsy strychnine is one of the best remedies.

The action of acetate of lead and of red oxide of lead or litharge on the animal economy is nearly the same as that of the carbonate of lead; consequently the above observations apply to all the salts of lead, which, as I have already said, are converted into the carbonate after being taken into the stomach.

Nitrate of Silver.—A corrosive, metallic poison.

Symptoms.—Nearly the same as those produced by corrosive sublimate; in general the pain in the stomach is more severe; greatly embarrassed respiration.

Tests.—If the poison has been taken in solution in water it is detected by the arsenious acid mixed with ammonia, precipitating a yellow arsenite of silver. A stick of phosphorus placed in it precipitates the silver in a metallic state.

Treatment.—Administer instantly a strong solution of common salt to form an insoluble chloride of silver in the stomach. Then evacuate the stomach by an emetic, and if symptoms of inflammation nevertheless supervene employ tepid baths and emollient fomentations and clysters.

Opium.—Symptoms.—Drowsiness and stupor, which are followed by delirium, pallid countenance, sighing, deep and stertorous breathing, cold sweats, sleepiness, death.

Treatment.—If you cannot get drugs use mustard and water, salt and water; after vomiting give plenty of very strong coffee, put a mustard plaster round the calf of each leg, and if cold and sinking give a good quantity of spirits and water. Keep the patient roused until the effects have passed off by beating the soles of the feet; dash cold water in the face. Remember, if the patient goes to sleep at this stage it will be the sleep of death.

Saliva of the Rabid Dog.—Symptoms.—These occur at a very uncertain interval after the bite, generally between the twentieth day and three or four months, sometimes not until after several years. The first symptoms are usually a sense of pain and uneasiness in the seat of the wound, which assumes a red and inflamed appearance—anxiety, languor, restlessness, spasms, horror, disturbed sleep, difficult respiration and shuddering at the slightest breath of air, succeed and are soon increased. Violent convulsions affect, at times, the whole body, distorting the muscles of the face. The eyes are red and protruded, the tongue swells and sometimes hangs out of the mouth, while there is a copious secretion of viscid saliva; there is pain in the stomach, vomiting often of bilious fluids; difficulty or often inability of swallowing and a sense of horror whenever liquids are seen; glassy appearance of the eyes; death.

Treatment.—The bitten part should be immediately cut out and a running sore made by caustic repeatedly applied. Even after the wound has healed the parts should be removed by the knife and caustic applied, making an ulcer, which should be allowed to heal by granulation. Suction by the mouth should never be neglected and bleeding should be promoted by the application of warm water. The wound should be covered for some days with a warm poultice. If convenient, exhausted cups should be applied. After hydrophobia has supervened no treatment will probably succeed.

Fox Glove Digitalis.—Symptoms.—Giddiness, impaired vision, sickness, hiccough, cold sweats, delirium, syncope, convulsions, death.

Treatment.—Administer cordials, brandy, whisky; apply a blister to the pit of the stomach; opium, strong coffee; keep the body in motion.

Phosphorous (Phosphorous).—A corrosive poison.

Symptoms.—Phosphorous, taken even in moderate quantities, produces immediate death, and as it has been exhibited as a remedy in this manner it may prove poisonous. The symptoms are violent pain in the stomach, with a hot alliaceous taste in the mouth; great excitement of the arterial system and horrible convulsions, which are the forerunners of death.

Treatment.—Dilute largely, so as to fill the stomach with liquid, by which the combustion of the phosphorous is impeded and vomiting induced without increasing the irritation of the stomach.

Magnesia, mixed with the fluid, neutralizes the acid. Give chalk or even whiting or even flour, stirred in. Give no oil or fat of any description.

Rattlesnake Poison.—Symptoms.—Quick pulse, impeded respiration, sudden depression of strength in the wounded limb extending over the whole body; convulsions; death.

Treatment.—Tie a handkerchief or rope very tight above the bitten part; suction of the wound; the application of cupping glasses; cauterization by hot irons or caustics. Administer internally ammonia, olive oil and whisky.

Nux Vomica.—Symptoms.—Sensation of inebriety, dizziness, twitching of the muscles of the mouth, stiffness of the arms and limbs, extreme difficulty of breathing, with excruciating pain.

Treatment.—Evacuate the stomach and bowels and then dilute freely with vinegar and water and other acidulous drinks; cold baths, strong coffee, tannin, purgatives, spirits of camphor.

Laudanum.—Symptoms.—Stupor, pulse small, weak and irregular; skin warm and livid, pupils contracted in the early stage, smell of opium in the breath.

Treatment.—Cold effusions to the head, strong coffee, tannic acid, sulphate of zinc. Keep the patient in continual motion; flap the surface of the body with wet towels.

Colchicum (Meadow Saffron).—An acro-narcotic poison, deriving its powers from colchici.

Symptoms.—Sickness and vomiting, violent purging, rapid sinking of the pulse and cold sweats.

Treatment.—Evacuate the contents of the stomach with a tablespoonful of mustard and water, injections of hot water, blisters to the pit of the stomach. Rub the spine briskly with a stimulating liniment. Cold applications to the head, afterwards cordial stimulants.

Verdigris.—Symptoms.—Colic pains, constant vomiting and purging, violent pains in the throat, with tension of the epigastrium. Indeed, all the symptoms of irritant poisoning.

Treatment.—Magnesia, carbonate of soda and emetic if necessary.

Vermin Poison.—Various powders for destruction of vermin, etc., contain arsenic and are frequent sources of poisoning.

The symptoms come on about half an hour after the dose has been taken, and are: Nausea and burning pain in the stomach, violent vomiting, intense thirst, purging and pain in the epigastrium on pressure. The treatment is to excite vomiting as much as possible by the administration of a scruple of sulphate of zinc and ipecacuanha and plenty of warm water, and to apply the stomach pump as soon as possible. The hydrated sesquioxide of iron, given in large quantities, is also useful, and a mixture of linseed meal, castor oil and water, made to the consistency of molasses, may also be given to protect the stomach.

Tartar Emetic.—Tartar emetic has been taken in mistake for Epsom salts.

Symptoms.—A livid countenance, violent pain in the stomach, spasmodic contractions of the muscles, particularly of the arms, and violent abdominal pains.

Treatment.—Excite vomiting, strong tea, quinine, gall-nuts.

Stramonium.—Symptoms.—Vomiting, giddiness, delirium sometimes furious madness, stupor, convulsions, paralysis, cold sweats and death.

Treatment.—Administer tannic acid, cold effusions to the head and strong coffee. Keep the patient in continual motion, the surface of the body being flapped with wet towels.

Blue Vitriol (Sulphate of Copper).—When taken it causes such severe vomiting as to be an antidote to itself. When this is not effectual then pains in the abdomen, purging and convulsions take place.

Treatment.—Encourage vomiting with warm water and give milk, flour and water, coffee and white of egg.

Muriatic Acid—A corrosive mineral poison.

Symptoms.—Sensation of burning in the throat, the oesophagus and the stomach; styptic taste in the mouth; great thirst; the eyes red and sparkling; the pulse very frequent and tense; the skin hot and dry; the tongue red and glazed; the lips black; vomiting of blood and yellow matter, having the pungent color of the acid; cold sweats, delirium and death. These are also the symptoms attending poisoning by any of the mineral acids; but it is said by Orfila that when hydrochloric acid is the poison a thick white fume, of a sharp, penetrating odor, similar to that exhaled by the acid, issues from the mouth.

Treatment.—Administer calcined magnesia, flaxseed tea, lime and demulcent drinks; soapsuds, bicarbonate of soda.

Sulphuric Acid.—Symptoms—Intense burning pain in the throat, gullet and stomach, vomiting of coffee grounds mixed with shreds of mucous and blood.

Treatment—Lime, magnesia, bicarbonate of soda, soapsuds, infusion of wood ashes, white of egg, oil or any mild dilutent.

Cantharides.—Symptoms.—Nausea, vomiting and purging; the matter ejected in either case being frequently bloody and purulent, writhing colic, great heat and irritation of the bladder and urinary organs.

Treatment—Copious dilution with milk and demulcent fluids, the warm bath, opiate, frictions; camphor internally administered and externally applied.

Corrosive Sublimate.—This is a corrosive metallic poison

Symptoms—An acrid, styptic, metallic taste, with the sensation of fulness and burning in the throat; copious salivation, but not always; tearing pains of the stomach and intestines; nausea, frequent vomiting of a fluid, occasionally mixed with blood; diarrhea, convulsions and death.

Treatment—Give large quantities of white of egg, diluted in water, in repeated doses. The albumen decomposes the corrosive sublimate and reduces it to a state of calomel, and the protoxide, which, acting on the bowels, carries itself off by purging. The poison is also reduced to calomel by a mixture of soap and the gluten of wheat flour. The warm bath may also be employed; and during convalescence the patient should subsist altogether on broths, milk and demulcent fluids.

Creosote.—An acrid poison.

Symptoms—It operates as a powerful topical excitant, causing inflammation of the tissue with which it comes in contact and destroying life by the nervous sympathy it induces.

Treatment—Administer freely white of eggs, then give direct emetics. The prostration is to be counteracted by ammonia and other stimulants, oleaginous and mucilaginous drinks.

Carbonic Acid Gas.—This gas is often extricated by burning charcoal in close rooms, so as to produce suspended animation and death. As it is also very heavy, it remains in fermenting vats and beer cellars long after the liquor has been drawn off or removed, so as to destroy individuals who incautiously enter them.

Symptoms—Great drowsiness, difficult respiration. The features appear swollen and the face bluish, as in cases of strangulation.

Treatment—Remove the patient into the open air and place him on his back, with his head elevated; dash cold water over the body and inflate the lungs with common air by means of bellows, or according to the directions laid down in the article on drowning.

Arsenic—Arsenious Acid.—A corrosive mineral poison.

Symptoms—Metallic, austere taste, constant spitting of saliva, constriction of the pharynx and gullet, nausea and vomiting, sometimes of a brown, mucous matter, a sensation of great heat in the throat, severe pain in the stomach, severe griping and purging, difficult breathing, prostration of the strength and paralysis of the feet and hands, delirium, convulsions, bloody urine and death.

Treatment—If vomiting does not already exist as a direct effect of the poison, administer sulphate of zinc and linseed tea. When sulphate of zinc cannot be procured administer two teaspoonfuls of mustard in a glass of water. Give lime water, large draughts of oil, sugar and water, charcoal, chalk and, if a drug store is near, procure hydrated sesquioxide of iron and administer about one tablespoonful, adding about twenty drops of liquor ammonia to each dose, which may be often repeated.

Aconite.—**Symptoms**—Numbness at the point of the tongue, with a sensation of burning in the throat, followed by tremors and a feeling of coldness in those parts, sickness and violent vomiting, giddiness, cold sweats, delirium and convulsions, which terminate in death.

Treatment—Administer freely acidulous fluids and cordials. Cause vomiting by administering a tablespoonful of mustard in water, plenty of strong coffee, without milk or sugar.

Morphia.—**Symptoms**—Morphia in poisonous doses causes nearly the same symptoms as opium; the acetate and hydrochlorate, in doses of three to six grains, cause headache, vertigo, dimness of sight, contraction of the pupils, vomiting, colic, diarrhea succeeded by obstinate costiveness, retention of urine, great itching of the skin, sometimes accompanied with a papular eruption and profuse sweats, convulsions, sometimes of a tetanic, sometimes of an epileptic, character. The acetate, in particular, causes tetanic twitching, resembling electric shocks. This is not a fatal symptom; but in these large doses the symptoms of this poison terminate in death.

Treatment—Strong coffee, without milk or sugar, after which produce vomiting. Mustard mixed in warm water, or grease in warm water. Keep the body in constant motion.

Cyanide of Mercury.—**Symptoms**—Weight and pain in the head, giddiness, nausea, quick pulse, loss of muscular power, foaming at the mouth, strong odor of bitter almonds.

Treatment—Cold effusions to the head and spine; carbonate of ammonia internally; inhalation of chlorine gas; small doses of chloride of lime or soda.

The chemical antidote, if there is time for its administration, is the peroxide of iron.

Belladonna.—**Symptoms**—A sense of great dryness and constriction of the pharynx and oesophagus; sickness, vertigo, dilated pupils and dimness of sight; laughter, delirium, redness and tumefaction of the face; convulsions. The stomach and bowels become sometimes so paralyzed that vomiting can scarcely be produced by the most powerful emetics and death follows.

Treatment.—Give emetics of sulphate of zinc or of copper; then evacuate the bowels by active purgatives and clysters; and follow these by large doses of vinegar and water, or other vegetable acids. The previous use of vinegar has been recommended, and it is said the emetics act with more certainty after its use; after the vomiting, strong coffee proves very efficacious.

Prussic Acid.—**Symptoms**—If the quantity be large death takes place instantly, but smaller quantities produce giddiness, loss of sight and fainting. The peculiar smell is often perceptible about the mouth.

Treatment—Give ammonia and water and apply a bottle of smelling salts to the nose; dash cold water on the face and give stimulants, as whisky, etc.

Hemlock.—A narcotic vegetable poison, deriving its poisonous properties from an alkaline principle called Conia.

Symptoms—Sickness, difficulty of respiration, great anxiety, vertigo, delirium, which often rises to maniacal phrensy, dilatation of the pupils, stupor, convulsion and death.

Treatment—Take twenty grains of sulphate of zinc and two tablespoonfuls of water and administer at once. Make your patient vomit; pour cold water on the head, give freely of vinegar and water or any other acidulous liquid.

Strychnia.—Symptoms—This is lockjaw; the body is bent backward like a bow, so as to rest on the feet and head only.

Treatment—Empty the stomach by an emetic, then give linseed tea, barley water and laudanum to relieve the spasms; about thirty drops of the tincture to an adult. Give plenty of powdered charcoal suspended in water. If the spasms have set in chloroform should be given or large doses of chloral.

Chloroform.—In threatened death from chloroform the tongue should be immediately pulled forward with hooked forceps and the stomach forcibly pressed up; artificial respiration should be resorted to without delay and galvanism; the patient should be placed in a current of cold air and the chest and extremities flapped with a wet towel. The head, if the face is pale, should be lowered; if turgid should be raised. Artificial respiration should be kept up for a long period, even after all appearance of life has ceased.

Poisonous Insects (Tarantula, Scorpion, Hornet, Wasp, Bee, Gnat, Gad-Fly, Sand-Fly, Etc.).—In general, the sting or bite of these insects occasions only a slight degree of pain and swelling; but occasionally the symptoms are more violent and sickness, fever, and occasionally death, result in consequence.

Treatment—Ammonia and oil may be rubbed on the affected part and a piece of rag moistened in the same, or in salt and water, may be applied till the pain is removed. Small doses of spirits of ammonia may also be given internally, with warm dilutents or wine and water. The sting may often be removed by making pressure over it with the barrel of a small watch-key.

RULES FOR ADMINISTERING MEDICINES.

HAVING REFERENCE TO AGE AND SEX.

For an adult (a person of forty years) the dose of common medicines is allowed to be about one drachm, sixty grains; those at twenty years, two-thirds of one drachm, forty grains; those at thirteen years, one-half drachm, thirty grains; those at seven years, one-third drachm, twenty grains; those at four years, one-fourth drachm, fifteen grains; those at three years, one-sixth drachm, ten grains; those at two years, one-eighth drachm, seven to eight grains; those at one year, one-twelfth drachm, five grains.

For babes under one year the dose should go down by months, at about the same rate as by years for those over a year.

Again, for persons in advanced life, say from sixty years, the dose must begin to lessen about five grains, and from that on five grains for each additional ten years.

Females, however, need a little less generally than males.

The above rules hold good in all medicines, except castor oil, the proportion of which cannot be reduced so much, and opium and its various preparations, which must be reduced generally in a little greater proportion.

One pound (lb.) contains 12 ounces.

MEDICAL ABBREVIATIONS, WEIGHTS AND MEASURES.

One ounce (oz.) contains 8 drachms.
One drachm (dr.) contains 3 scruples.
One Scruple (scru.) contains 20 grains (gr.).

Liquid Measure.

One pint contains 16 fluid ozs., 4 gills.
One ounce contains 8 fluid drs., ¼ gill.
One tablespoon contains about half a fluid ounce.
One teaspoon contains about one fluid drachm.
Sixty drops make about one teaspoon.

Whenever a tea or tablespoon is mentioned it means the same as it would to say spoonful; the same of cup, in fluid measure; but in dry measures where a spoon or spoonful is mentioned the design is that the spoon should be taken up moderately rounding unless otherwise mentioned.

EXPLANATION OF TECHNICAL TERMS FOUND IN MEDICAL WORKS.

Abdomen—The lower front part of the body.
Aromatic—Spicy and fragrant drugs used to prevent gripeing of drastic purgatives.
Aperient—A gentle laxative or purgative.
Acidity—Sourness. Acids neutralize alkalies.
Alkaline—Having the properties of alkali. Alkalies neutralize acids.
Antacid—Medicines which neutralize acids.
Anti—Being prefixed to any word signifies against.
Antiscorbutic—Alteratives for scrofula; blood purifiers.
Antisyphilitic—Remedy for venereal diseases.
Albus—White, hence whites; fluor albus.
Antisialagogue—Remedy for salivation.
Antisceptic—That which will prevent putrefaction.
Antiphlogistic—Remedy for fever and inflammation.
Antispasmodic—Remedy for spasms, cramps or convulsions.
Anodyne—A medicine which will allay pain and produce sleepiness.
Alterative—Medicines which will gradually restore healthy action.
Astringent—Medicines which constringe, draw up surfaces with which they come in contact; used in flooding, diarrhea, whites, etc.
Abscess—A cavity containing pus.
Anemia—Without blood, more properly blood without its proportion of iron, which gives it the bright red.
Alvine—Relating to the intestines.
Aliment—Any kind of food.
Alimentary Canal—The entire passage through the whole intestines from mouth to anus; the passage for the aliment.
Albumen—An element found in both animal and vegetable substances, constituting the chief part of the white of eggs.
Antimonial—Medicines containing antimony.
Anus—The external opening of the rectum, lower intestine.
Antiperiodic—That which cures periodic diseases, as ague, intermittent fevers.
Antidote—An opposing medicines, used chiefly against poison.
Adult—A person of full growth.
Aqua—Water.
Aqua Ammonia—Water of ammonia.
Amenorrhea—Absence of the menses.
Antiemetic—That which will stop vomiting; against emesis.
Arsenic—A metal, the oxide of which is arsenious acid, commonly called ratsbane.

Abortion—A premature birth, or miscarriage.
Abortives—That which will cause abortion.
Abrasion—Bruising the skin.
Acetate—A salt prepared with acetic acid.
Acrid—Irritating, biting.
Adhesive—Applied to sticking plasters and to parts adhering from inflammations.
Balm—Aromatic and fragrant medicine, usually an ointment.
Balsam—Resinous substances possessing healing properties.
Basilicon—An ointment containing wax, rosin, etc.
Belladonna—Nightshade.
Bergamot—Perfume made from the lemon peel.
Bile—A secretion from the liver.
Bilious—An undue amount of bile.
Bi-tartrate of Potash—Cream of tartar.
Blanch—To whiten.
Bowels—Intestines.
Bolus—A large pill.
Bronchia—Branches of the windpipe.
Bronchitis—Inflammation of the bronchial tubes, which lead into the lungs.
Bronchocele—Enlargement of the thyroid gland, enlarged neck.
Butyric Acid—An acid obtained from butter.
Calcium—The metalic basis of lime (see fluor spar).
Calimus—Sweet flag.
Calcareous—A substance containing chalk or lime.
Calcined—Burned so as to be easily reduced to powder.
Calculus—Stone or gravel found in the bladder, gall ducts, kidneys and ureters; ducts which lead from the kidneys to the bladder.
Calcium—The metallic basis of lime (see fluor spar).
Capsicum—Cayenne pepper.
Catarrh—Flow of mucus.
Cathartic—An active purgative.
Catheter—Tube for emptying the bladder.
Carminative—An aromatic medicine.
Caustic—A corroding or destroying substance, as nitrate of silver, potash, etc.
Citric Acid—Acid made from lemons.
Chronic—Of long standing.
Collapse—A recession of the blood from the surface.
Coma—Stupor.
Constipation—Costiveness.
Contagious—A disease which may be given to another by contact.
Counter—To work against, as counter-irritant, Spanish-flies, draughts to the feet, etc.
Congestion—Accumulation of blood in a part unduly.
Convalescence—Improvement in health.
Cuticle—The outer or first portion of the skin, which consists of three coats.
Datura Stramonium—Stinkweed, jimpson, etc.

Diaphoretics—Medicines which aid or produce perspiration.
Decoction—To prepare by boiling.
Dentifrice—A preparation to cleanse the teeth.
Defecation—To pass the feces, to go to stool.
Dentition—Act or process of cutting teeth.
Desiccation—To dry, act of drying.
Demulcent—Mucilaginous, as flaxseed and gum arabic.
Dermoid—Resembling or relating to the skin.
Detergents—Cleansing medicines, as laxatives and purgatives.
Diagnosis—To discriminate disease.
Diaphragm—Midriff.
Diarrhea—Looseness of the bowels.
Digest—Assimilation or conversion of food into chyme—to prepare medicines with continued, gentle heat.
Discutient—A medicine which will scatter or drive away tumors.
Diuretic—That which increases the amount of urine.
Diluted—Reduced with water, as diluted alcohol, half alcohol and half water.
Digitalis—Fox-glove, a narcotic.
Dorsal—Having reference to the back.
Douche—A dash or stream upon any part.
Drachm—Sixty grains, a teaspoonful or a teaspoon of.
Dulcamara—The bitter-sweet, or woody nightshade.
Dyspepsia—Difficult digestion.
Dysphonia—Difficulty in speaking.
Dysuria—Difficult or painful urination.
Eau—Water.
Eau de Cologne—Cologne water.
Ebulition—To boil.
Eclectic—To choose.
Eclectic Physician—One who professes to be liberal in views; independent of party and who favors progress and reform in medicine.
Effervesce—To foam.
Efflorescence—Redness of the general surface.
Effete—Worn out, waste matter.
Elaterium—Fruit of the wild cucumber, a hydrogogue.
Electuary—Medicine prepared at the consistency of honey.
Elixir—A tincture prepared with more than one article.
Emesis—The act of vomiting.
Emetic—Medicines which produce emesis, vomiting.
Emmenagogue—A medicine which will aid or bring on menses.
Emollients—Softening and screening medicines, slippery-elm bark, flaxseed, gums, etc.
Emulsion—Mucilage from the emollients.
Ennui—Lassitude, dullness of spirit, disgust of condition, etc.
Epi—Above or over.
Epidermis—Outer skin.
Epigastrium—Region of the pit of the stomach.
Epilepsy—Convulsion fits, with loss of sense for the time, foaming at the mouth and stupor.

Epiglottis—Trap-door cartilage at the root of the tongue, preventing food or fluid from entering the windpipe.
Epistaxis—Nose bleed.
Ergot—Spurred rye.
Eructation—Raising wind from the stomach, belching.
Eruption—Pimples or blotches on the skin, or pustules from small-pox.
Eschar—A slough on the surface.
Escharotic—That which will destroy the flesh.
Essential—Having reference to essences made from essential oils and alcohol.
Ether—A volatile fluid.
Etherial Oil—Volatile oil.
Eustachian Tube—A tube leading from the side of the throat to the internal ear.
Eversion—Turning inside out.
Evacuation—To discharge by stool, to haste away. (See the remarks in the body of the work on "Costiveness.")
Evaporation—To escape in vapor.
Exacerbation—Violent increase in disease.
Exanthemata—Eruptive disease, as small-pox, scarlet fever, measles, etc.
Excrement—The feces, that which passes by stool.
Excretion—That which is thrown off, become useless.
Excoriation—Abrasion, to bruise the skin.
Exhalents—Vessels which throw out fluid upon the external or internal surface of the body.
Expectorants—That which produces or aids a discharge of mucus from the bronchial tubes or from the lungs.
Excision—To cut off an extremity.
Extremity—Applied to the arms and legs, called upper and lower extremities.
Exterpation—To cut out or to remove a part.
Extract—To take out, as a tooth, to extract a ball or any foreign substance from a wound; an active principle obtained from vegetables.
Express—To press out juices.
Excrescence—An unnatural growth.
Extravasation—A collection of blood into a cavity, or under the skin.
Facial—Belonging to or having reference to the face.
Farina—Meal or flour from vegetables.
Farcy—A disease of the lymphatic vessels in the skin of the flanks of a horse.
Fauces—The pharynx and back part of the mouth.
Fascicular—A bundle, in bundles.
Feces—That which passes by stool.
Febrile—Having reference to fevers.
Febrifuge—Medicines to drive away fever, producing perspiration.
Felon—A deep abscess of the finger, involving the bone, because under the periosteum, the membrane which covers the bone.

Femur—The thigh bone.
Femoral—Relating to the thigh bone.
Ferment—To oxidize, to effervesce, to work, as emptyings, beer, wine, cider, etc.
Fermentation—To sour, to decompose, both heat and moisture being necessary to keep it up.
Ferri Limatura—Iron filings, very valuable in female debility and for males of a weak habit of body.
Ferrum—Iron.
Fever—That which "old school physicians" call a disease, whilst another class (the Thompsonians) say it is an effort of nature to throw off disease; but Eclectics take it as an indication that the circulating medium is not regular, and go to work at once to equalize the circulation by the use of diaphoretics, combined with tonics and detergents, which soon sets all to rights, for fever and perspiration cannot long exist together.
Filter—To strain through paper made for that purpose.
Fibre—A very small thread-like substance of animal or vegetable matter.
Fibula—The smallest bone of the leg below the knee.
Fistula—An ulcer.
Flaccid—Flabby, soft, relaxed.
Flabby—Loose and soft to the touch.
Flatus—To inflate the stomach or bowels with gas.
Fluoric Acid—A fluid obtained from the fluor spar cut with sulphuric acid.
Flatulence—Gas in the stomach.
Flooding—Uterine hemorrhage.
Fluor—An increased discharge, to flow.
Fluor Spar—Fluoride of calcium.
Fluor Albus—White flow, leucorrhea, whites, etc.
Flux—To flow, diarrhea.
Formula—Medical prescription.
Friction—Rubbing with the dry hand or dry, coarse cloth.
Fulminating Powder—An explosive preparation used in fireworks.
Fumigate—To smoke a room or any article needing to be cleansed.
Function—The particular action of an organ, as the function of the stomach, liver, lungs, heart, etc.
Fundament—The anus.
Fungus—Spongy flesh in wounds, proud flesh, a soft cancer which bleeds upon touching its broken surface.
Fusion—To fuse, to melt.
Furor—Very violent delirium, not accompanied by fever.
Galbanum—A resinous gum from a genus of plants.
Genus—Family of plants, a group all of a class or nature.
Gall—Biles.
Gall Bladder—A bag which receives the gall, or bile, through ducts from the liver, delivering it to the stomach in health through the duct called communis choledochus.

Gall Stones—Hard biliary concretions found in the gall bladder, and sometimes causing death, from not being able to pass through the ductus communis.

Galla—The gall nut, or an excrescence found upon the oak.

Gallic Acid—An acid from the nut gall.

Galipot—A glazed jar used for putting up gummy extracts.

Galvanic—Having reference to galvanism.

Gamboge—A drastic purgative unless combined with aromatics.

Gangrene—Partial death of a part, often ending in entire mortification of the part and sometimes of the whole body.

Ganglion—A knot or lump on tendons, ligaments or nerves.

Gaseous—Having the nature of gas.

Gastric—Of or belonging to the stomach.

Gastric Juice—Secretion of the stomach.

Gastritis—Inflammation of the stomach.

Gastrodynia—Pain in the stomach, sometimes with spasm of the stomach.

Gelatine—Isinglass.

Gelatinous—Like jelly.

Genitals—Belonging to generation, the sexual organs.

Gentian—An European root possessing tonic properties.

Genu—The knee.

Genuflexion—Bending the knee, kneeling.

Germ—The vital principle or life spark.

Gestation—To be pregnant.

Gland—Secreting organs having ducts emptying into cavities, which often become obstructed, causing them to enlarge; hence the enlargement of the thyroid gland in the neck, causing bronchocele.

Glans—A gland.

Gleet—Chronic gonorrhea.

Globules—Small round particles, having special reference to particles of the red part of the blood.

Glossa—The tongue; a smooth tongue.

Gloss—To give a lustre; to comment; to write or make explanations.

Glossarist—A writer of glosses or comments.

Glossary—An explanation of words.

Glossarial—Containing explanations.

Glossitis—Inflammation of the tongue.

Glottis—The opening into the windpipe at the root of the tongue larynx, covered by the epiglottis.

Gluten—Coagulable lymph, white of an egg, a principle in wheat and other vegetables.

Glutton—One who eats excessively.

Gonorrhea—An infectious discharge from the genital organs.

Gout—Painful inflammation of the joints of the toes or of the fingers.

Granule—A small particle of healthy matter, not pus.

Granulation—Healing up of an ulcer or wound with healthy matter.

Gravel—Crystaline particles in the urine.

Green Sickness—Chlorosis, debility requiring iron.

Griping—Grinding pain in the stomach or bowels.
Gutta—One drop, drops.
Gutta Percha—Dried juice of a genus of trees Isonandra gutta.
Guttural—Relating to the throat.
Gymnasium—A place for sportive exercise which is very valuable to those who cannot or will not take exercise for the sake of dollars and cents.
Gypsum—Sulphate of lime, more commonly called plaster of paris, because first introduced from that place.
Habit—Good or bad habit, constitutionally or prejudicially predisposed to do some particular thing; medically, as consumptive habit, rheumatic habit, etc.
Hema—Blood, prefixed to other words.
Hematemesis—Hemorrhage from the stomach.
Hematuria—Hemorrhage from the bladder.
Hemoptysis—Hemorrhage from the lungs.
Hemorrhoids—Piles, bleeding piles.
Henbane—Hyoscyamus.
Hereditary—Disease from parents.
Hernia—Rupture, which permits a part of the bowel to protrude.
Herpes—Disease of the skin.
Hiera Picra—A medicine containing aloes.
Humerus—The single bone of the upper arm.
Humeral—Pertaining to the arm.
Humors—The fluids of the body, excluding the blood.
Hydragogues—Medicines which produce watery discharges, used in dropsy, as elaterium.
Hydrargyrum—Metallic mercury, quicksilver, doctors' name for calomel.
Hydrocyanic Acid—Prussic Acid, nothing more poisonous.
Hydrofluoric Acid—Same as fluoric acid.
Hygea—Health.
Hygiene—Preserving health by diet and other precautions.
Hypo—Signifies low, a low state of health, more annoying to the sufferers than to their friends, who are constantly boring them about it; called hysterics in women (from hysteria, the womb or uterus), but blues only, when it gets hold of men; they come from the same cause, general debility; takes a strong remedy, iron, as medicine.
Hypoglottis—Under the tongue.
Hysteria—The uterus (womb), also disease, depending upon or caused by uterine irregularities.
Hysteritis—Inflammation of the uterus.
Ichor—An acrid, biting, watery discharge from ulcers, often corroding, eating the surface.
Icterus—Jaundice, a bilious disease, which shows itself by yellowness of the eyes and skin.
Icterus Albus—Chlorosis, whites, etc.
Ignition—To catch on fire, from ignis, fire.
Ileus—Colic in the small intestines.
Iliac—Situated near the flank.
Iliac Region—Sides of the abdomen between the ribs and the thighs.

Imbecile—One of weak mind, imbecility.
Imbibe—To absorb, to drink.
Imbricate—To overlap, as tiles on a house.
Immerse—To plunge under water.
Immobile—Immovable, as stiff joints.
Imperforate—Without a natural opening.
Impervious—Closed against water.
Impetigo—Tetter.
Imponderable—Not having weight, light or electricity.
Impoverished—Exhausted vitality.
Impotence—Sterility, not being able to produce.
Impregnation—The act of producing.
Incision—To cut.
Incombustible—Incapability of being burned.
Incompatibles—Medicines which ought not to be mixed or given together.
Incontinence—Not being able to hold the natural excretions.
Incorporate—To mix medicines together.
Incubation—To hatch eggs, slow development of disease.
Indication—That which shows what ought to be done.
Indigenous—Peculiarity of a country, or of a small section of country, applied to disease, plants, etc.
Indigestion—Dyspepsia.
Indolent—Slow in progress, applied to ulcers and tumors which are slow and with but little or no pain.
Induration—Hardening of any part of the system by disease.
Infectious—Communicable disease from one to another.
Infirmary—Where medicines are distributed gratuitously to the poor, but more recently some physicians have got to calling their offices infirmaries.
Inflammation—Attended with heat, redness, swelling, tenderness and often with throbbing.
Inflatus—To distend, to blow up with wind, or to fill up with gas, as the stomach, bowels, etc.
Influenza—A disease affecting the nostrils, throat, etc., of a catarrhal nature.
Infusion—Medicines prepared by steeping in water, not to boil.
Inguinal—In the groin.
Ingredient—One article of a compound mixture.
Inhalation—To draw in the breath.
Injection—Any prepartion to be introduced by the rectum.
Inorganic—Matter not having organs all alike, as metals.
Insanity—Derangement of the mind.
Insertion—The attachment of muscles and tendons to the bones, which they move by contraction.
Inspiration—The act of drawing in the breath.
Inspissation—To thicken by boiling, to make what is called the concentrated extracts, desiccation.
Instinct—An involuntary action, as closing the eyelids, breathing, etc., natural perception of animals.
Integument—A covering, the skin.
Inter—A prefix denoting between.
Intercostal—Between the ribs.

Intermission—Time between paroxysms of fever or another disease.
Intermittent Fever—Fever which comes on at regular periods, between which periods there is little and sometimes no fever, an interval.
Internal—Upon the inside.
Interosseous—Between the bones.
Interval—The period between the paroxysms of periodical diseases, as ague, etc.
Intestines—The contents of the abdomen.
Intestinal Canal—Embracing the duodenum (the first division below the stomach), the jejunum (the second division of the small intestines), the ileum (the third and longest portion of the small intestines), the secum (the first portion of the large intestine), the colon (the large intestine), and the rectum (the lower trap door).
Intolerance—In medicine, applied to the eye, as intolerance of light; to the stomach, as intolerance of food.
Inversio Uxeri—Inversion of the uterus.
Inversion—To turn the inside out.
Irreducible—Applied to hernia and to joints which have been put out and cannot be put back to their place.
Ischuria—Not being able to pass the urine.
Issue—Sore made as a counter-irritant, to draw irritation from a diseased part.
Itch—Psora, scabies, a catching eruption of the skin.
Itis—An addition to a word denoting inflammation, as pleuritis, pleurisy, etc.
Ivory Black—Animal charcoal.
Jaundice—A disease caused by the inactivity of the liver or ducts leading from it.
Jelly—Gelatine in a fluid state, as applied to medicine.
Jesuits Bark—First name of Peruvian bark from its having been discovered by Jesuit missionaries.
Juglar—Applied to veins of the throat.
Jujube—An East India fruit, something like a plum, used in coughs, but of doubtful reputation.
Kali—Potash.
Kelp—Ashes of seaweed.
Knot—Surgeons tie their knot by passing the thread twice through the loop, which prevents slipping.
Labia—Lips.
Labia Pudendi—Lips, or sides of the vulva.
Labial—Of or belonging to the lips.
Labor—Child birth, parturition.
Laboratory—A place of chemical experiments or operations. (See frontispiece).
Lancinating—Sharp, piercing, as lancinating pain.
Laryngeal—Of the larynx.
Larynx—The upper part of the throat.
Laryngitis—Inflammation of the throat.
Latent—Hidden, as latent heat; see the remarks connected with steam boiler explosion.

Lassitude—Weakness, a feeling of stupor.
Laxative—A very gentle cathartic.
Leptandrin—Powder made from the leptandria virginica, blackroot, Culvers physic.
Leucorrhea—Fluor albus, whites, chlorosis, etc.
Levigate—To reduce to a very fine powder.
Ligature—A thread, to ligate, to tie with a ligature.
Located—Fixed, seated upon some organ.
Lingua—The tongue.
Linguist—A speaker, fluency, one who understands different languages.
Liniment—A fluid preparation to be applied by friction.
Lithontriptic—A medicine reported to dissolve gravel or stone in the bladder.
Lithotomy—The operation of cutting to take out stone of the bladder.
Liver—The largest gland and largest organ of the body.
Livid—A dark colored spot on the surface.
Loins—Lower part of the back.
Lotion—A preparation to wash a sore.
Lubricate—To soften with oil, or to moisten with a fluid. The internal organs are covered with a membrane which throws out a lubricating fluid enabling them to move easily upon each other.
Lute—A paste with which to close chemical retorts, the casein, curd of milk, is used for that purpose.
Lymph—A thin colorless fluid carried in small vein-like vessels called lymphatics.
Macerate—To steep, soften by soaking.
Mal—Bad, mal practice, bad practice, not according to science.
Malformation—Irregular, unnatural formation.
Malaria—Bad gases causing disease supposed to arise from decaying vegetable matter.
Malignant—A pestilential and generally dangerous disease, as the Cholera of 1832.
Mamma—The female breast, which is composed of glands that secrete the milk upon the principle that the liver secretes bile; each organ for its specific purpose; but secreting organs or glands are the more liable to get obstructed, thus producing disease.
Mastication—The act of chewing.
Masturbation—Excitement by the hand of the genital organs. The most injurious, health destroying, soul debasing of all evils introduced into the world because its frequent repetition draws very heavily upon the nervous system, prostrating the energies, destroying the memory, together with the life principle, as well as the principles of morality which ought to govern every human being between himself and his Creator.
Maturity—To become ripe, to arrive at adult age, beyond further growth.
Materia—Matter, healthy substance.

Materia Medica—The science of medicine and medical combinations.
Maturation—Formation of pus, unhealthy matter.
Matrix—The womb.
Meconium—The first passages after birth.
Medical—Relating to medicine.
Medicated—Having medicine in its preparation.
Membrane—A thin lining or covering, skin-like, as the peritoneum, which lines the cavity of the bowels and covers the intestines, and the periosteum, membrane, which covers the bones, etc.
Medicament—A remedy, hence medicamentum, the Welch remedy for every disease.
Medicinal—Having medical properties.
Medullary—Like marrow, brain-like.
Mel—Honey.
Menstruation—Monthly flow.
Mentha Piperita—Peppermint.
Median—The middle.
Mellifluous—Flowing with honey, sweetness, delicious, akin to luscious, juicy, mellowness.
Menorrhagia—Excessive flooding.
Micturition—To urinate, to pass the urine.
Midwifery—Art of assisting at child birth.
Minim—About one drop, one-sixtieth of a fluid drachm.
Minimum—The smallest, the smallest dose, the opposite of maximum.
Modus Operandi—The way in which medicines act, applicable also to any action, the way of doing it.
Morbid—Unhealthy.
Morbus—A disease; hence cholera morbus, disease of the bowels.
Mordant—That which fastens the colors in dyeing, as alum, cream of tartar, argal, vitriols, tin, liquor, etc.
Mucus—Animal mucilage.
Mucus Membrane—See remarks under the head of "Inflammation," in the body of the work.
Mucilage—A watery solution of gum, or elm bark, etc.
Muriatic—Having reference to sea salt.
Muriatic Acid—Marine acid, often called hydrochloric acid.
Muscle—A bundle of fibers.
Muscular—Having reference to the muscles, strongly built.
Myrrh—A resinous gum.
Narcotic—Stupefying medicines, producing sleep.
Nares—The nostrils.
Nasal—Of the nose.
Nausea—Sickness of the stomach, may increase until vomiting takes place, or it may not.
Nauseant—That which produces nausea.
Navel—Center of the abdomen.
Necros—Death.
Necrosis—Death of a bone.
Nephros—The kidney.

Nephritis—Inflammation of the kidney or kidneys.
Nervous—Easily excited.
Nervine—That which will allay or soothe nervous excitement.
Neuralgia—Pain in nerves.
Niter—Saltpeter.
Nocturnal—Occurring in the night.
Nitrate—Nitric acid combined with alkalies or alkaline salts.
Normal—In a natural health condition.
Nostrum—A medical preparation.
Nothus—Spurious, illegitimate, a bastard.
Nudus—Nude, without clothing.
Nutrition—Nourishment.
Nutritious—Nourishing.
Obesity—Corpulence, excess of fat or flesh.
Obstetrics—The science of midwifery.
Ochre—An ore of iron.
Oculus—The eye.
Oculist—An eye doctor.
Oleaginous—An oily substance.
Omentum—The caul, peritaneal covering of the intestines.
Opacity—To obstruct light.
Opaque—Not transparent, inability to see through it.
Opthalmos—The eye.
Opthalmia—Disease of the eye, inflammation of the eye.
Opiate—An anodyne.
Organ—A part of the body which has a certain work to perform called the function of organs, as the stomach, lungs, womb, etc.
Organic—Bodies made up of organs.
Organism—Vital organization.
Organized—Furnished with life.
Orgasm—The closing excitement of sexual connection.
Origin—The point of commencement.
Orifice—An opening.
Os Tince—Mouth of the womb, or uterus.
Osseous—A bony substance.
Ossification—To become bone; from ost, or osteo, a bone or like a bone.
Ostalgia—Pain in a bone.
Osteoma—Tumor, like bone.
Ostitis—Inflammation of a bone or bones.
Otic—Having reference to the ear.
Otitis—Inflammation of the ear.
Otorrhea—Discharge from the ear.
Ova—An egg, made up of little eggs.
Ovaria—Testes; most generally applied to the female; female testes, two egg-shaped bodies (made up of little particles, or eggs) having an attachment to the uterus in the broad ligaments which support that organ, having tubes or ducts opening from them into the uterus called Fallopian tubes from the man's name who first gave a description of them. One of these particles is thrown off at each menstrual flow.

Oviparous—Birds or any animals that produce their young from eggs or by eggs.
Ovum—An egg.
Oxalic Acid—An acid found in sorrel, very poisonous.
Oxide—A combination of oxygen with a metal or fluid, as oxygen combining with vinegar fluid forms vinegar, oxygen combining with iron forms oxide of iron, rust of iron, etc.
Oxygen—One of the elements of the air, an acidifying (souring) principle and an element (a particle or part) of water.
Oxymel—A preparation of vinegar and honey from mel, honey.
Ozena—Feted ulcer of the nose, or fetid discharge from the nose.
Pabulum—Food; aliment.
Pad—A cushion.
Palliative—To afford relief only.
Palpitation—Unhealthy or unnatural beating of the heart.
Pan—As a prefix means all.
Panacea—Remedy for all diseases, consequently speaking ironically any patent medicine.
Paralysis—Loss of motion, numbpalsy.
Partus—Labor; the young when brought forth.
Parturition—Child birth.
Paroxysm—A fit of disease occurring at certain periods.
Periodical—Occurring at a certain time.
Petal—A flower leaf, as rose leaves, etc.
Phthisis—A wasting consumption.
Pathos—A disease.
Pathology—The doctrine of disease.
Pectoral—Pertaining to the breast.
Pediluvium—A foot bath.
Pendulous—To hang down.
Penis—The male organ of generation.
Pepsine—A peculiar substance in the stomach which aids digestion.
Peptic—Digestive, hence dyspeptic, not digesting.
Percolation—To run or draw through some substance, straining.
Premonitory—To give a previous notice, as premonitory symptoms.
Peri—Around, a covering.
Pericardium—Around the heart, sac containing the heart.
Pericarditis—Inflammation of the pericardium.
Perin—A testicle, male organs, corresponding with testes, in females; with this difference, however, that with males they are upon the outside, whilst with females they are upon the inside of the body.
Perineum—That part between the anus and organs of generation or genitals.
Perineal—Relating to the region of the perineum.
Period—A certain time.
Periodicity—Returning at a certain time.
Periosteum—The membrane which covers all bones.
Perspective View—As it appears to the eye at a certain distance.
Perturbation—To disturb.

Perversion—An unhealthy change; to change from its proper or natural course.

Pessary—That which will support, or hold up the womb, in prolapsus; see our remarks on "Female Debility."

Phagedenic—An eating and fast-spreading ulcer.

Pharmacy—The art of combining and preparing medicines.

Phlegm—Mucus from the bronchial tubes and throat.

Phlogistic—Tendency to inflammation.

Phosphorus—An inflammable and luminous substance, prepared from urine and bones.

Phosphate—Phosphoric acid in combination with metals, as phosphate of iron, phosphate of lime, etc.

Piles—Tumors at or in the anus; sometimes protruding; often attended with hemorrhage, then called hemorrhoids.

Piperine—A preparation from black pepper, considered valuable in ague.

Placenta—Afterbirth, which has a connection to the womb and to the child during pregnancy; but is naturally thrown off by the violent contractions of the womb at this period, there being no further use for it. Oh, the wisdom of our Creator, how glorious to contemplate Everything adapted to the necessities of the case.

Plethora—Overfulness; if healthy causing obesity, corpulence.

Pleuritis—Inflammation of the pleura, pleurisy.

Pneumon—The lungs.

Pleura—The serous membrane covering the lungs and folded upon the sides.

Pneumonia—Inflammation of the lungs.

Podophyllin—A powder made from the podophyllum peltatum, mandrake root.

Pomum—The apple; hence, pomace, mashed apple.

Potassium—The basis of potash.

Potus—A drink; hence, potion, a medicated drink.

Predisposition—A tendency to a certain disease.

Pregnancy—Being with child.

Prognosis—The art of guessing how a disease will terminate.

Prolapsus—A falling.

Prolapsus Ani—Falling of the anus.

Prolapsus Uteri—Falling of the uterus.

Prostration—Without strength.

Prussiate—A compound with prussic acid.

Prussic Acid—Hydrocyanic acid; one of, or the most virulent poison in existence.

Psora—The itch.

Pubes—The prominence at the lower front part of the body.

Puberty—Full growth; an adult; perfection.

Pubic—Having reference to the region of the pubes.

Pudendum—The female organs of generation.

Puer—A boy or child.

Puerpera—A woman who has just brought forth a child; hence, puerperal fever, fever at, or soon after childbirth.

Pulmo—A lung.

Pulmonitis—Inflammation of the lung or lungs.

Pulmonary—Relating to the lungs, as pulmonary balsam, pulmonic waters, etc.

Pulvis—A powder; hence, pulverize, to make fine. All these words show how heavily we have drawn upon other languages for our own; consequently the necessity of studying the Latin and Greek to properly understand ours.

Pupil—The dark circle in the eye.

Purgative—A gentle cathartic.

Pus—Unhealthy matter.

Pustule—A slight elevation, having pus.

Putrefaction—To decompose by fermentation.

Putrid—Rotton; decomposed.

Pyroligneous Acid—An acid obtained from wood; the essence of smoke; if a little of it is put into a barrel with meat in the brine it smokes it without trouble. I think a gill to the barrel sufficient, perhaps a little less will do. It is obtained by inserting an old gun-barrel or other iron tube into a coal pit, near the bottom, when burning; it condenses in the tube and drops from the outer end into a dish, then bottled for use.

Quassia—A bitter tonic; the chips of the wood are used.

Rachis—The spine.

Rachitis—Rickets, bending of the spine, and sometimes the long bones of the limbs; may be also enlargement of the head, bowels and the ends of the long bones.

Radius—The bone of the upper arm.

Radial—Having reference to the upper arm.

Radiated—Diverging from a center.

Radix—A root.

Ramus—A branch.

Ramification—To branch out.

Rancidity—Rancid, stale; applied to oil, fat, butter, etc.

Rash—A redness of the skin in patches.

Ratsbane—Arsenious acid, arsenic.

Rattle—Noise of air passing through mucus, as in croup.

Reaction—To return after recession.

Recession—Striking in the blood or disease, going to the internal organs.

Rectum—The lower portion of the intestines.

Reduction—To set a fracture or to return a hernia.

Refrigerant—A cooling medicine or drink.

Regimen—Regulation of diet and habits to preserve health or to cure disease.

Relapse—Recurrence of disease after an improved appearance, which is generally worse than the first attack.

Relaxation—Losing the healthy tone of any part or the whole system.

Repletion—Fullness.

Reproduction—Generation, procreation.

Respiration—To breathe, including both inspiration and expiration.

Resolution—To return to health, applied to inflammations.

Retching—An effort to vomit.

Retention—Delay of the natural passage of the urine or feces.
Revulsion—To draw away disease, as draughts, or blisters, irritating plasters, etc.
Rheumatism—Inflammation of the fibrous tissue, mostly confined to the large joints.
Recini Oleum—Castor oil.
Rigor—Coldness, with shivering.
Rochelle Salts—A mixture of tartarate of potash and soda.
Rubefacients—Medicines which cause redness of the skin, as mustard, raddish leaves, etc.
Rupture—Hernia; by some called a breach.
Saccharine—The properties of sugar.
Saliva—The secretion of the mouth, spittle; hence, salivation, an increased flow of saliva.
Salt—A compound of acid with an alkali, or metal.
Saltpetre—Nitrate of potash.
Salubrious—Climate favorable to health.
Sanative—A curative medicine.
Sanguis—Blood.
Sanguinious—Bloody; sanguineous discharge, as bloody-flux.
Santonin—A powder obtained from worm-seed.
Sarcoma—A fleshy tumor, generally of a cancerous nature.
Scabies—The itch.
Scirrhus—A hard tumor, generally of a cancerous nature.
Scrofula—A constitutional tendency to disease of the glands.
Scrotum—The sac which encloses the testicles.
Sedative—To depress, the opposite of stimulation.
Seidlitz—A village of Bohemia; hence, seidlitz powders, which originated at that place.
Sinapis—Mustard; hence, sinapisms, mustard plasters.
Slough—Death of a part, allowing it to come out from the healthy part.
Stimulant—A medicine calculated to excite an increased and healthy action.
Styptic—To stop bleeding.
Snake-Root—Common or Virginia snake-root; but black snakeroot is the black-cohosh.
Spasm—Cramp or convulsion.
Specific—A remedy having a uniform action, producing health.
Sperm—Seminal fluid, now more often called the semen, seed.
Spermatic—Having reference to the testicles or ovaries.
Spina—The backbone; hence, spine.
Stitch—A spasmodic pain.
Stoma—The mouth.
Stomatitis—Inflammation of the mouth.
Strangulation—To choke; also applied to hernia which cannot be reduced.
Sudor—Sweat; hence, sudorific, to sweat.
Sulphate—A combination with sulphuric acid.
Sulphuric Acid—Oil of vitriol.
Suppression—An arrest of a natural discharge.
Suppuration—To produce pus.

Sympathy—To be affected by the disease of another organ, as sick headache from overloading the stomach.
Symptom—A sign of disease.
Syncope—To swoon, fainting.
Syphilis—Disease from sexual connection with those who have venerial disease.
Tannic Acid—An acid from oak bark, an astringent.
Tartaric Acid—An acid from cream of tartar, found in grapes.
Tenesmus—Difficulty and pain at stool, with a desire to go to stool often.
Tent—A roll of lint or cloth to keep wounds open until they heal from the bottom.
Testes—Testicles.
Therapeutics—Relating to a knowledge of treating disease, the curative action of medicine.
Thorax—The chest.
Tibia—The large bone of the lower leg.
Tonsils—Glands on each side of the throat.
Trachea—The windpipe.
Translation—Disease going to some other organ.
Triturate—To rub into a powder.
Tumor—An enlargement of a portion, usually of the external parts.
Ulna—Small or underbone of the arm.
Umbilicus—The naval.
Ureter—Duct leading from the kidney to the bladder.
Urethra—Duct leading out from the bladder.
Uterus—The womb.
Vagina—The passage from the womb to the vulva.
Venery—Sexual indulgence.
Vermifuge—Having the property to destroy worms.
Virus—Contagious poison.
Vulva—External opening of the female genitals.
Whites—Fluor albus.
Yeast—The principle of fermentation.
Zinci Sulphas—Sulphate of Zinc, white vitriol.

TANNERS', SHOE AND HARNESS MAKERS' DEPARTMENT.

COLORS—Best Color for Boot, Shoe and Harness Edge, and Ink Which Cannot Freeze.—Alcohol 1 pt.; tincture of iron 1½ oz.; extract of logwood 1 oz.; nutgalls, pulverized, 1 oz.; soft water, ½ pt.; mix. Or:

2. Take alcohol 1 pt.; extract of logwood and tincture of iron, of each 1 oz.; nutgalls, pulverized, 1 oz.; and sweet oil ½ oz.; mix.

I have found shoemakers using these colors, each thinking he had the best color in the world. The sweet oil is believed to prevent the hot iron from sticking, and to make a better polish.

The first one makes a very passable ink for winter use, by carrying a quick hand to prevent it from spreading in the paper, from the presence of the alcohol, which, of course, is what prevents it from freezing and that is the only argument in favor of it as an ink for writing purposes.

3. **Cheap Color for the Edge.**—Soft water 1 gal.; extract of logwood 1 oz.; and boil them until the extract is dissolved, then remove from the fire and add copperas, 2 ozs.; bi-chromate of potash and gum arabic, of each ½ oz.; all to be pulverized.

This makes a cheap and good color for shoe or harness edge, but for cobbling or for new work, upon which you do not wish to use the "hot kit," but finish with heel-ball, you will find that if, as you pour this out into the bottle to use, you put a tablespoon of lamp-black to each pint of it, it will make a blacker and nicer finish. It makes a good color for cheap work, but for fine work, nothing will supercede the first colors given. This also makes a very good ink for writing purposes, if kept corked to avoid evaporation, which makes it gummy or sticky. See also "Grain Side Blacking."

4. **Sizing for Boots and Shoes, in Treeing-Out.**—Take water, 1 qt., and dissolve in it, by heat, isinglass, 1 oz., adding more water to make up for evaporation. When dissolved, add starch, 6 ozs.; extract of logwood, beeswax and tallow, of each 2 ozs.; and continue the heat until all is melted and well mixed. Rub the starch up first by pouring on sufficient boiling water for that purpose.

It makes boots and shoes soft and pliable, applying it when treeing-out, and is especially nice to clean up work which has stood long on the shelves.

5. **Water-Proof Oil Paste Blacking.**—Take camphene, 1 pt., and put into it all the India-rubber it will dissolve; when dis-

solved, add currier's oil, 1 pt.; tallow, 6 lbs.; lamp-black, 2 ozs.; mix thoroughly by heat.

This is a nice thing for old harness or carriage tops, as well as for boots and shoes. Or you can dissolve the rubber in the oil by setting them in rather a hot place for a day or two, and save the expense of camphene, as that is of no use only as a solvent to the rubber. There are those, however, who do not like to use the rubber, thinking it rots the leather. Then use the following:

6. **Water-Proof Paste Without Rubber.**—Take tallow, 1 lb.; beeswax, ¼ lb.; castor or neats-foot oil, ½ pt., and lamp-black, ½ oz.; mix by heat. Or—

7. **Neats-Foot Oil,** brought to a proper consistence with a little beeswax and tallow, colored with lamp-black, will be found proof against snow or water.

8. Some, however, may prefer the following manner of preserving their boots and shoes, from a correspondent of the Mechanics' Gazette, but if they do the boots must be made large, from the fact that the preparation has a tendency to shrink the leather. He says: "I have had only three pairs of boots for the last six years (no shoes), and I think I shall not require any more the next six years to come. The reason is that I treat them in the following manner:

"I put 1 lb. of tallow and ½ lb. of rosin in a pot on the fire; when melted and mixed, I warm the boots and apply the hot stuff with a painter's brush until neither the sole nor the upper will soak in any more. If it is desired that the boots should immediately take a polish, dissolve 1 oz. of wax in spirits of turpentine, to which add a teaspoon of lamp-black. A day after the boots have been treated with the tallow and rosin, rub over them this wax in turpentine, but not before the fire.

"Thus the exterior will have a coat of wax alone and will shine like a mirror. Tallow or any other grease becomes rancid and rots the stitching as well as the leather, but the rosin gives it that antiseptic quality which preserves the whole. Boots and shoes should be made so large as to admit of wearing cork soles. Cork is so bad a conductor of heat that with it in the boots the feet are always warm on the coldest stone floor."

9. **Black Varnish for Edge.**—Take 98 per cent alcohol, 1 pt.; shellac, 3 ozs.; rosin, 2 ozs.; pine turpentine, 1 oz.; lamp-black, ¼ oz.; mix, and when the gums are all cut, it is ready to use. But bear in mind that low proof alcohol will not cut gums properly for any varnish.

This, applied to a boot or shoe edge with a brush, gives it the shining gloss resembling much of the Eastern work. It is also applicable to wood or cloth requiring a gloss after having been painted.

10. **Varnish for Harness, the Best in Use.**—Take 98 per cent alcohol, 1 gal.; white pine turpentine, 1½ lbs.; gum shellac, 1½ lbs.; Venice turpentine, 1 gill. Let these stand in a jug in the sun or by a stove until the gums are dissolved; then add sweet oil, 1 gill, and lamp-black, 2 ozs.; rub the lamp-black first with a little of the varnish.

This varnish is better than the old style, from the fact that its polish is as good and it does not crack when the harness is twisted or knockod about.

If you wish a varnish for fair leather, make it as the above, in a clean jug, but use no lamp-black. The pine turpentine and sweet oil make it pliable, yet not sticky.

TANNING, BLACKING AND FINISHING.—Process for Calf, Kip and Harness, in from Six to Thirty Days.—For a 12-lb. calf skin take terra-japonica, 3 lbs.; common salt, 2 lbs.; alum, 1 lb.; put these into a copper kettle with sufficient water to dissolve the whole by boiling.

The skin or skins will first be limed, haired and treated in every way as for the old process. Then it will be put into a vessel with sufficient water to cover it, at which time you will put in one pint of the composition, stirring it well, adding the same amount each night and morning for three days, when you will add the whole, handling two or three times daily all the time tanning. You can continue to use the tanning liquid by adding half the quantity each time of new liquor and by keeping these proportions for any amount, and if you desire to give the leather the appearance of bark color you will put in one pound of Sicily sumac.

Kip skins will require about 20 days; light horse hides for harness, 30 days, to make good leather, while calf skins will only require from 6 to 10 days at most. The japonica is put up in large cakes of about 150 pounds, and sells in common times at about 4 cents per pound in New York.

Bryon Rose, a tanner, of Madison, Ohio, says that one quart of oil of vitriol to 50 sides of leather, with the japonica and alum as above, leaving out the salt, will very much improve it. The acid opens the pores, quickening the process without injury to the leather.

2. **Canadian Process.**—The Canadians make four liquors in using the japonica:

The first liquor is made by dissolving, for 20 sides of upper, 15 lbs. of terra japonica in sufficient water to cover the upper being tanned. The second liquor contains the same amount of japonica and 8 lbs. of saltpetre also. The third contains 20 lbs. of japonica and 4½ lbs. of alum. The fourth liquor contains only 15 lbs. of japonica and 1½ lbs. of sulphuric acid; and the leather remains 4 days in each liquor for upper, and for sole the quantities and time are both doubled. They count 50 calf skins in place of 20 sides of upper, but let them lie in each liquor only 3 days.

3. **Deer Skins—Tanning and Buffing for Gloves.**—For each skin take a bucket of water and put into it 1 qt. of lime; let the skin or skins lay in from 3 to 4 days; then rinse in clean water, hair and grain; then soak them in cold water to get out the glue; now scour or pound in good soapsuds for half an hour, after which take white vitriol, alum and salt, 1 tablespoon of each to a skin; these will be dissolved in sufficient water to cover the skin, and remain in it for 24 hours; wring out as dry as con-

venient, and spread on with a brush ½ pt. of currier's oil, and hang in the sun about 2 days, after which you will scour out the oil with soapsuds and hang out again until perfectly dry; then pull and work until they are soft, and if a reasonable time does not make them soft, scour out in suds again as before until complete. The oil may be saved by pouring or taking it from the top of the suds, if left standing a short time. The buff color is given by spreading yellow ochre evenly over the surface of the skin when finished, rubbing it in well with a brush.

The foregoing plan was pursued for a number of years by a brother of mine, and I have worn the gloves and know the value of the recipe. But there are plans of using acid, and if the quantity is not too great, there is no reason in the world why it may not be used. The only caution necessary is to see that the strength of acid does not kill the nature of the leather. In proper quantities it tans only, instead of destroying the fiber. I will give a couple of the most valuable methods:

4. **Tanning with Acid.**—After having removed the hair, scouring, soaking and pounding in the suds, etc., as in the last recipe, in place of the white vitriol, alum and salt, as there mentioned, take oil of vitriol (sulphuric acid) and water, equal parts of each, and thoroughly wet the flesh side of the skin with it, by means of a sponge or cloth upon a stick; then folding up the skin, letting it lie for 20 minutes only, having added a solution of sal-soda and water, say 1 lb. to a bucket of water, and soak the skin or skins in that for 2 hours, when you will wash in clean water and apply a little dry salt, letting lie in the salt over night or that length of time; then remove the flesh with a blunt knife, or, if doing business on a large scale, by means of the regular beam and flesh knife; when dry or nearly so, soften by pulling and rubbing with the hands, and also with a piece of pumice stone. This, of course, is the quickest way of tanning, and by only wetting the skins with the acid and soaking out in twenty minutes they are not rotted.

5. **Another Method.**—Oil of vitriol, ½ oz.; salt, 1 teacup; of milk sufficient to handsomely cover the skin, not exceeding 3 qts.; warm the milk, then add the salt and vitriol; stir the skin in the liquid 40 minutes, keeping it warm; then dry and work as directed in No. 4.

6. **Tanning Sheep Skins, Applicable for Mittens, Door Mats, Robes, Etc.**—For mats, take two long-wooled skins, make a strong suds, using hot water; when it is cold wash the skins in it, carefully squeezing them between the hands to get the dirt out of the wool; then wash the soap out with clean cold water. Now dissolve alum and salt, of each half a pound, with a little hot water, which put into a tub of cold water sufficient to cover the skins, and let them soak in it over night, or 12 hours; then hang over a pole to drain. When they are well drained, spread or stretch carefully on a board to dry. They need not be tacked if you will draw them out several times with the hand while drying. When yet a little damp have 1

ounce each of saltpetre and alum, pulverized, and sprinkle on the flesh side with a blunt knife to remove any remaining scraps of flesh, trim off projecting points and rub the flesh side with pumice or rotten stone, and with the hands. They will be very white and beautiful, suitable for a foot-mat, also nice in a sleigh or wagon on a cold day. They also make good robes, in place of the buffalo, if colored and sewed together. And lamb skins (or sheep skins if the wool is trimmed off evenly to about one-half or three-fourths of an inch in length) make most beautiful and warm mittens for ladies or gentlemen.

7. **Tanning Fur and Other Skins—Fifty-Dollar Recipe.—First.**—Remove the legs and other useless parts and soak the skin soft; then remove the fleshy substances and soak in warm water for an hour. Now

Take for each skin, borax, saltpetre and glauber-salts, of each ½ oz., and dissolve or wet with soft water sufficient to allow it to be spread on the flesh side of the skin.

Put it on with a brush, thickest in the center or thickest part of the skin, and double the skin together, flesh side in, keeping it in a cool place for 24 hours, not allowing it to freeze, however.

Second.—Wash the skin clean, and then:

Take sal-soda, 1 oz.; borax, ½ oz.; refined soap, 2 ozs. (Colgate's white soap is recommended as the best, but our "White Hard Soap" is the same quality); melt them slowly together, being careful not to allow them to boil, and apply the mixture to the flesh side as at first; roll up again and keep in a warm place for 24 hours.

Third.—Wash the skin clean, as above, and have saleratus, 2 ozs., dissolved in hot rain water sufficient to well saturate the skin; then:

Take alum, 4 ozs.; salt, 8 ozs., and dissolve also in hot rain water; when sufficiently cool to allow the handling of it without scalding, put in the skin for 12 hours; then wring out the water and hang up for 12 hours more to dry. Repeat this last soaking and drying from 2 to 4 times, according to the desired softness of the skin when finished.

Lastly.—Finish by pulling, working, etc., and finally by rubbing with a piece of pumice-stone and fine sandpaper.

This works admirably on sheep skins, as well as on fur skins, dog, cat or wolf skins also, making a durable leather well adapted to washing.

A man in our county paid fifty dollars for this recipe, and has made his money out of it many times. It is very valuable.

8. **Tanning Deer and Woodchuck Skins for Whips, Strings, Etc.**—Prepare the skin according to the last recipe; then:

Take oil of vitriol, 1 oz.; salt, 1 pt.; milk, 3 qts.; mix.

Now dip the skin in warm rain water having sufficient saleratus in it to make it rather strong, or as in the third head of last recipe, and work and squeeze it well for a few minutes; then wring dry as convenient and put it into the vitriol mixture for 50 minutes, stirring all the time; now wring out and soak a while, and finally dry and work until soft.

9. Grain-Side Blacking for Ten Cents a Barrel.—Take a barrel and put into it quite a quantity of old iron, cast or wrought, then fill nearly full of soft water, and add 1 pt. of oil of vitriol; stir it up well, and in a month or two you have just as good blacking for the grain-side as could be made by using vinegar in place of water.

This makes good blacking for boot, shoe or harness edge also. The acid used is so trifling that no injury will arise to the leather.

Tanners will, of course, first apply the urine before applying the blacking, saving from ten to twenty dollars yearly in this way, instead of the old plan of using vinegar.

10. French Finish for Leather.—Take a common wooden pail of scraps (the legs and pates of calf skins are the best) and put a handful of each, of salt and pulverized alum among them, and let them stand three days; then boil them until you get a thick paste; in using you will warm it. In the first application put a little tallow with it, and for the second a little soft soap, and use it in the regular way of finishing, and your leather will be soft and pliable, like the French calf skin.

I have no doubt that this would make a good preparation for shoemakers to use in treeing-out, leaving a soft pliableness not otherwise obtained.

11. French Patent Leather.—The process which has been so successfully adopted by the French artisans in glazing leather, so as to give it the repute for superior quality and beauty which it now universally sustains, is as follows:

Work into the skin with appropriate tools three or four successive coatings of drying varnish, made by boiling linseed oil with white lead and litharge, in the proportion of 1 lb. of each of the latter to a gallon of the former, and adding a portion of chalk or ochre, each coating being thoroughly dried before the application of the next. Ivory black is then substituted for the chalk or ochre, the varnish thinned with spirits of turpentine, and fine additional applications made in the same manner as before, except that it is put on thin and not worked in. The leather is rubbed down with pumice-stone, in powder, and then placed in a room at 90 deg., out of the way of dust. The last varnish is prepared by boiling ½ lb. of asphaltum with 10 lbs. of drying oil used in the first step of the process, and then stirring in 5 lbs. of copal varnish and 10 lbs. of turpentine.

It must have a month's age before it is fit for use, in order to exhibit its true characteristics.—U. S. Gazette.

PAINTERS' DEPARTMENT.

DRYING OILS.—To Prepare for Carriage, Wagon and Floor Painting.—Take linseed oil, 1 gal., and add gum shellac, 2 lbs.; litharge, ½ lb.; red lead, ¼ lb.; umber, 1 oz. Boil slowly, 2 or 3 hours, until the gums are dissolved.

Grind your paints in this (any color) and reduce wtih turpentine. Yellow ochre is used for floor painting. This dries quick and wears exceedingly well.

2. **Drying Oil, Equal to the Patent Dryers.**—Linseed oil, 2 gals., and add litharge, red lead and umber, of each 4 ozs., and sugar of lead and sulphate of zinc, of each 2 ozs.

Boil until it will scorch a feather. Use this or either of the others, in quantity to suit the object of the work being done.

3. **Japan Dryer of the Best Quality.**—Take linseed oil, 1 gal., and put into it gum shellac, ¾ lb.; litharge and burned turkey umber, of each ½ lb.; red lead, ½ lb., and sugar of lead, 6 ozs. Boil in the oil until all are dissolved, which will require about 4 hours. Remove from the fire and add spirits of turpentine, 1 gal., and it is done.

While in Princeton, Ind., after selling one of my books to T. & J. T. Ewing, extensive carriage manufacturers of that place, I obtained the foregoing recipe. It was published in a work printed in Columbus, Ohio, devoted to the art of painting. From this fact, and also that the gentlemen from whom I obtained it had tested it and were using it, I have not myself tried it, but know from the nature of the articles used that nothing better will be required.

4. **Another.**—Another dryer is made by taking linseed oil, 5 gals., and adding red lead and litharge, of each 3½ lbs.; raw umber, 1¼ lbs.; sugar of lead and sulphate of zinc, of each ½ lb.; pulverize all the articles together and boil in the oil until dissolved; when a little cool add turpentine, 5 gals., or to make it of a proper consistence.

The gentleman of whom I obtained this recipe paid ten dollars for it. He was using it successfully, and said he used 2 to 3 drops of it to a quart of varnish also, and especially when the varnish did not dry readily.

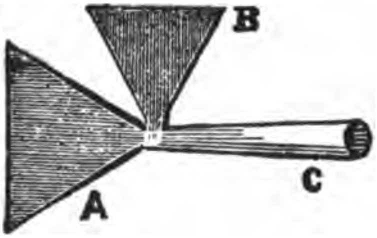
OIL PAINT.—To Reduce with Water.—Take gum shellac, 1 lb.; sal-soda, ½ lb.; water, 3 pts.; put all into a suitable kettle and boil, stirring till all is dissolved. If it does not all dissolve, add a little more sal-soda; this, when cool, can be bottled for use. If it smells bad when opened it does not hurt it.

Directions for Using.—Mix up 2 qts. of oil paint as usual, except no turpentine is to be used, any color desired. Now put 1 pt. of the gum shellac mixture with the oil paint when it becomes thick, and may be reduced with water to a proper consistence to lay on with a brush. Two coats will be required, and with the second coat sand may be applied if desired. I used this upon a picket fence with white lead and yellow ochre for the body and a little lamp-black to give it a dark shade, putting on sand with the second coat. It is still firm and good, the work being done nearly four years ago.

The sand was applied with a tub-like box, with many small holes to allow the even spreading of the sand, as with a pepper-box. I do not regret using this kind of paint, nor the sanding, as it adds much to the durability of any outdoor painting. But a better plan of sanding is represented in the "Painter's Sanding Apparatus" below.

2. **Another Method.**—Take soft water, 1 gal., and dissolve in it pearlash, 3 ozs.; bring to a boil and slowly add shellac, 1 lb.; when cold it is ready to be added to oil paint in equal proportions. The expense of these is only one-third of oil paint.

Some persons may think it bad policy to learn painters to reduce oil paint with water, but I think every man should be told of the plan who is going to have a job of work done, and if he makes up his mind to try anything of the kind it is then his own business; and I am perfectly sincere in recommending it, for if there was any great fault in it, four years would show it.



3. It is made of tin. The tube C enters upon the nozzle of a small bellows; the sand is put into the funnel B, which stands perpendicular upon the apparatus when the broad mouthpiece A is held level in using. The funnel discharges the sand just before the nozzle of the bellows, and by working the bellows the sand is blown evenly upon the freshly put on paint through the mouthpiece A, the escape orifice not being over the sixteenth part of an inch in depth, and may be made two and a half or three inches wide.

Many persons like the plan of sanding generally after painting, but from the fact that when it is desired to renew the paint, brushes cannot last long upon the sand, I think it only proper to sand fences or fronts, where boys' knives would be too freely used.

PAINT SKINS.—To Save and Reduce to Oil.—Dissolve sal-soda, ½ lb., in rain water, 1 gal.

The skins that dry upon the top of paint which has been left standing for any length of time may be made fit for use again by covering them with sal-soda water and soaking them therein for a couple of days. Then heat them, adding oil to reduce the mixture to a proper consistence for painting and straining. Painters who are doing extensive business will save many dollars yearly by this simple process.

NEW TIN ROOFS.—Valuable Process for Painting.—Scrape off the rosin as clean as possible and sweep the roof; now:

Dissolve sufficient sal-soda in a bucket of water to make it quite strong; wash the roof thoroughly with the soda water and let it remain until it is washed off by the rains, or after a few hours, washing off with clean water, rinsing well.

When dry give it one coat of pure Venetian red, mixed with one-third boiled and two-thirds raw linseed oil; the second coat may be of any color desired. The soda water dissolves the rosin remaining after scraping, destroys the greasy nature of the solder, and of the new tin, so that there will be sufficient "grip" for the paint to adhere firmly. The pure Venetian red is one of the most durable paints for metallic roofs, but is often rejected on account of its color. The above mode of painting will set aside this difficulty.

2. **Fire-Proof Paint, for Roofs, Etc.**—Slack stone-lime, by putting it into a tub, to be covered, to keep in the steam. When slacked, pass the powder through a fine sieve, and to each 6 qts. of it add 1 qt. of rock-salt and water, 1 gal.; then boil and skim clean. To each 5 gals. of this add pulverized alum, 1 lb.; pulverized copperas, ½ lb., and still slowly add powdered potash, ¾ lb.; then fine sand or hickory ashes, 4 lbs.

Now add any desired color and apply with a brush. Looks better than paint and is as durable as slate. It stops small leaks in roofs, prevents moss and makes it incombustible and renders brick impervious to wet.—Maine Farmer.

3. **Water-Proof, Oil Rubber Paint.**—Dissolve about 5 lbs. of India rubber in 1 gal. of boiled linseed oil by boiling; if this is too thick, reduce with boiled oil; if too thin, use more rubber.

Especially applicable to cloth, but valuable for any other material.

Frosting Glass.—The frosty appearance of glass, which we often see, where it is desired to keep out the sun or "man's observing eye," is done by using a paint composed as follows:

Sugar of lead, well ground in oil, applied as other paint; then pounced, while fresh, with a wad of batting held between the thumb and finger.

After which it is allowed to partially dry; then with a straight-edge laid upon the sash you run along by the side of it a stick sharpened to the width of line you wish to appear in the diamonds, figures or squares, into which you choose to lay off. Most frequently, however, straight lines are made ½ inch or more from the sash, according to the size of light; then the center of the light made into diamonds.

ORIENTAL.—Crystal Painting.—The colors used are Prussian blue, crimson, white and yellow lakes, Rossean, white zinc and No. 40 carmine. Druggists keep them in small tubes. They must be mixed with Demar varnish, rubbing with a table knife or spatula upon glass.

Directions for Making Various Shades or Compound Colors.—Proportion them about as follows: For green, 1-5 blue, 4-5 yellow; purple, 1-6 blue, 5-6 crimson; orange, 1-4 crimson, 3-4 yellow; wine color, 1-12 blue, 11-12 crimson; pink, add a little crimson to white zinc; brown, mix a dark purple and add yellow, according to the shade desired; black, add crimson to dark green until the shade suits you; to make the compound colors lighter, add the lightest color in it, and make darker by using more of the darkest color in the compound. For backgrounds, white, white-zinc or pink white with turpentine and boiled linseed oil and Demar-varnish; black, lamp-black, with asphaltum varnish and boiled linseed oil and turpentine in equal quantities; flesh color, white zinc with a small portion of crimson and chrome yellow to suit. For sketching out the figures on the groundwork use a little lamp-black with asphaltum varnish, turpentine and boiled linseed oil to make it flow freely.

Directions for Painting.—Make your glass perfectly clean and place it over the picture you wish to copy; then with the sketching preparation trace on the glass all the lines connected with the figures of the picture which you are copying, being careful to sketch lines very distinct; when the sketching is done and dry, proceed to lay on the background inside of the sketched lines until all the sketching is closed, and when the background is dry proceed to put on the colors, commencing with green, if any in the figure, ending with yellow. When the colors are all laid put the background upon the balance of the glass, and when all is dry have tin foil crumpled very much in your hand, and then partly straighten out and lay it over the figure, and keep it in its place by pasting paper over it in such manner that it cannot slip away, letting the paper cover the whole back of the glass, or a wood back can be placed behind the glass, and all is complete, and will look well or ill, according to the practice and taste of the painter.

2. **Fancy Green.**—Unscorched, pulverized coffee, put into the white of an agg, will in 24 hours produce a very beautiful green for fancy painting. Proof of poison in unbrowned coffee.

SKETCHING PAPER.—To Prepare.—Bleached linseed oil, turpentine and balsam of fir, equal parts of each; mix.

Have a frame of a little less size than the paper to be prepared, and apply paste or thick gum solution to one side and the outer edge of it. Wet the paper in clean water and lay it upon the frame and press it down upon the pasted side of the frame, and turn the outer part of the paper over the outside of the frame upon the paste there, which holds it firm; and when it becomes dry it is tight like a drumhead. While in this condition, with a brush saturate it with the above mixture; three or four coats will be needed, giving each one time to dry before applying the next. Only sufficient is needed to make it transparent, so that when you wish to sketch a rose or other flower or leaf from nature, the paper can be placed upon it like the glass in the "Oriental Painting;" then trace the lines and finish it up in the same way also as there described; or that you may see through it in taking perspective views of distant scenery.

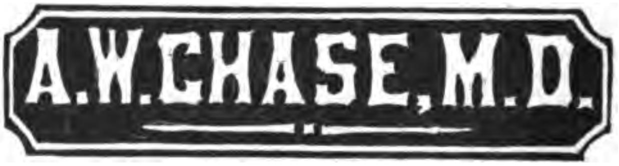
DOOR PLATES.—To Make.—Cut your glass the right size and make it perfectly clean with alcohol or soap. Then cut a strip of tin foil sufficiently long and wide for the name, and with a piece of ivory or other burnisher rub it lengthwise to make it smooth. Now wet the glass with the tongue (as saliva is the best sticking substance), or if the glass is very large, use a weak solution of gum arabic or the white of an egg in half a pint of water, and lay on the foil, rubbing it down to the glass with a bit of cloth; then also with the burnisher. The more it is burnished the better it will look. Now mark the width on the foil which is to be the height of the letter, and put on a straight-edge and hold it firmly to the foil, and with a sharp knife cut the foil and take off the superfluous edges. Then either lay out the letters on the back of the foil (so they shall read correctly on the front) by your own judgment or by means of pattern letters, which can be purchased for that purpose. Cut with the knife, carefully holding down the pattern or straight-edge, whichever you use. Then rub down the edge of all the letters with the back of the knife or edge of the burnisher, which prevents the black paint or japan, which you next put over the back of the plate, from getting under the foil; having put a line above and one below the name, or a border around the whole plate or not, as you bargain for the job. The japan is made by dissolving asphaltum in just enough turpentine to cut it (see "Asphaltum Varnish). Apply with a brush as other paint over the back of the letters and over the glass, forming a background. This is used on the iron frame of the plate also, putting it on when the plate is a little hot, and as soon as it cools it is dry. A little lamp-black may be rubbed into it if you desire it any blacker than it is without it.

If you choose you can remove every other foil letter, after the japan is dry, and paint in its place red, blue or other colored letters, to make a greater variety out of which for your customers to choose, as the one they desire you to follow in getting up their plate. Tin foil being thicker than silver or gold foil, will not show the paint through it in little spots, as they do; but if these foils are desired to be used, you can put on two thicknesses by proceeding as follows, which prevents the paint from showing through them: Lay on the first coat of these foils the same as directed for the tin foil, and smooth it down by rubbing on the front of the glass. Then breathe on it until a dampness is caused. Now put on the second and burnish well, having paper over it; but instead of the knife to cut around your pattern or straight-edge, take a sharp needle, using the point, make lines through the leaf around the pattern letter or straight-edge; then with a bit of jeweler's wood or other hard wood made to a narrow and sharp point, remove all up to the lines, both in and around the letters, as these foils have not the substance to peel off as the tin foil, japanning over them the same as the other letters. Paper letters can be cut out of advertisements and put on by wetting the glass the same as for the foil, japanning over them, and when dry removing them and painting the places out of which they came with various colors as desired, as the japan will not peel, but makes a sharp and distinct edge. These painted letters look well in this way, and by taking advantage of printed letters saves the skill and time necessary to form them.

To illustrate: In the name given below, A may be gold foil, W will be blue, C red, H black, A gold foil, S blue, E red, M black, and again D gold foil, which any one can see makes a more showy plate than if all were of one foil or one color.

Set your glass in the frame with putty and put a thin coat of putty over the whole plate, as the plaster of paris filling which is generally used soon eats out the japan or paint and spoils the job. Persons with any ingenuity can very soon make a nice plate if they will pay attention to the above rules, as well as to pay five dollars for instructions, as a little practice must be had to become perfect, even if you do pay five dollars for an hour or two's telling and showing. Shellac varnish colored with lamp-black is good in place of the japan. See "Varnish—Transparent, for Wood."

ETCHING AND GRINDING UPON GLASS.—For Signs or Side Lights.—Take the "Asphaltum Varnish," and with a small pencil lay out the name or design, not putting the varnish upon the letters, but around it, leaving the space which the letters of the sign are to occupy, free and clear, as seen in the following door plate, represented in the wood cut, and, by the way, a very nice style of letter for that purpose also, we think:



The varnish is to cover the black surface in the sign or name. The white line around the outside represents a border which improves the appearance of the plate. When the varnish is dry have some melted beeswax, and as it begins to cool, with a knife take some of it up and scrape it off upon the edge of the glass being etched, so as to form a wall to hold the acid upon the glass while etching. Now lay the glass flat and pour a little flouric acid on the name, letter or design thus prepared, and let it remain on for one hour, not allowing the glass to be touched or moved for that time. Then pour off the acid into your bottle, and it can be used again. The asphalt prevents the acid from eating or etching only the letter, and the wax wall prevents the acid from flowing off and being wasted. When you pour off the acid wash the glass with a little water, scrape off the wax and remove the asphalt with a little turpentine, and all is done.

The above directions are for plain glass; but if you desire you can gild the letter which is etched (eat out), or you can gild all except the letter, if desired, as described in the recipe for "Door Plates," or you can grind the surface of the glass as described under the head of "Glass Grinding for Signs, Shades," etc. This applies equally well to "flashed," or what is called "stained glass," worked in the same way as above, putting the design or letters upon the stained side, which eats away the color and leaves the design clean and white, or you can etch only a part of the way through the stain, which shows up the letter or flower lighter in color than the rest of the glass, which makes it look very beautiful for side-lights in halls, lamps, druggists' windows, etc.

There are two kinds of colored glass—one is called "Pot-metal," the other "Flashed." The pot-metal glass is made by mixing the stain or coloring with the melted glass while making, and consequently is alike all the way through. The stained glass is made by applying the color to one side of the glass after it is made, then applying sufficient heat to allow it to take hold of the glass only, the color being all on one side. This is the kind desired.

If it is desired to etch upon druggists' or other jars it can be done by preparing the name to be put on, with the varnish and wax. Then have a lead box without top or bottom, in shape on the lower edge to fit the shape of the jar, and press this down upon the wax to make it tight. Then pour your acid into the box, which keeps it in its place the same as the wax does on a flat surface. Ornaments or flourishes can be put on as well as letters.

The old plan was to cover the whole surface with wax, then remove it from the letter, which was very slow and troublesome, and if a bit of wax remained upon the bottle, the acid could not cut where the wax remained; then to hold the glass over the fumes of the acid instead of putting the acid upon the glass.

2. **Glass Grinding for Signs, Shades, Etc.**—After you have etched a name or other design upon uncolored glass, and wish to have it show off to better advantage by permitting the light to pass only through the letters, you can do so by:

Taking a piece of flat brass sufficiently large not to dip into the letters, but pass over them when gliding upon the surface of the glass; then with flour of emery, and keeping it wet, you can grind the whole surface very quickly to look like the ground glass globes often seen upon lamps, except the letter which is eaten below the general surface.

Whole lights of glass can be ground in this way instead of frosting, or the frosting can be done here in place of the grinding, if preferred.

3. **Fluoric Acid—To Make for Etching Purposes.**—You can make your own fluoric (sometimes called hydro-fluoric) acid

by getting the fluor or Derbyshire spar, pulverizing it and putting all of it into sulphuric acid, which the acid will cut or dissolve.

PORCELAIN FINISH.—Very Hard and White, for Parlors.—To prepare the wood for the finish, if it be pine, give one or two coats of the "Varnish—Transparent for Wood," which prevents the pitch from oozing out, causing the finish to turn yellow. Next, give the room at least four coats of pure zinc, which may be ground in only sufficient oil to enable it to grind properly. Then mix to a proper consistence with turpentine or naphtha. Give each coat time to dry. When it is dry and hard, sandpaper it to a perfectly smooth surface when it is ready to receive the finish, which consists of two coats of French zinc ground in and thinned with Demar-varnish, until it works properly under the brush.

Mr. Miles, of this city, one of our scientific painters, has been sufficiently kind to furnish me this recipe, prepared expressly for this work, therefore the most explicit confidence may be placed in it, yet any one can judge for themselves from the nature of the articles used that it must be white and hard. He goes on to say that if the French zinc in varnish cannot be procured, the varnish may be whitened with zinc ground in oil as a very good substitute, being careful not to use too much, in which case it will diminish the gloss and be more liable to turn yellow. A little turpentine or naphtha may be added, if too thick, to work well, but in no instance should oil be used to thin the paint.

This finish, if properly applied, is very beautiful, and although purely white may be kept clean more easily than other kinds of painting by simply using a dusting brush, or if soiled, a sponge wet in cold soft water without soap, is the better way.

N. B.—Not a particle of white lead should be used where this finish is to be applied, either in the priming or any subsequent coats, or a brush used that has been in lead without being thoroughly cleansed, as a yellow hue will soon present itself, which is caused by a chemical change taking place between the lead and zinc.

PAINTERS' ECONOMY IN MAKING COLORS.—Prussian Blue.—First—Take nitric acid, any quantity, and as much iron shavings from the lathe as the acid will dissolve; heat the iron as hot as can be handled with the hand; then add it to the acid in small quantities as long as the acid will dissolve it; then slowly add double the quantity of soft water that there was of acid, and put in iron again as long as the acid will dissolve it. Second—Take prussiate of potash, dissolve it in hot water to make a strong solution, and make sufficient of it with the first to give the depth of tint desired, and the blue is made. Or:

2. **Another Method.**—A very passable Prussian blue is made by taking sulphate of iron (copperas) and prussiate of potash, equal parts of each, and dissolving each separately in water; then mixing the two waters.

3. **Chrome Yellow.**—First—Take sugar of lead and paris white, of each, 5 lbs.; dissolve them in hot water. Second—Take bi-chromate of potash, 6½ ozs., and dissolve it in hot water also, each article to be dissolved separately; then mix all together, putting in the bi-chomate last. Let stand 24 hours.

4. **Chrome Green.**—Take paris white, 6¼ lbs.; sugar of lead and blue vitriol, of each 3¼ lbs.; alum, 10½ ozs.; best soft Prussian blue and chrome yellow, of each 3 1-3 lbs.; mix thoroughly while in fine powder, and add water, 1 gal., stirring well, and let stand 3 or 4 hours.

5. **Green, Durable and Cheap.**—Take spruce yellow and color it with a solution of chrome yellow and Prussian blue, until you give it the shade you wish.

6. **Paris Green.**—Take unslacked lime of the best quality, slack it with hot water; then take the finest part of the powder and add alum water, as strong as can be made, sufficient to form a thick paste; then color it with bi-chromate of potash and sulphate of copper until the color suits your fancy. N. B.—The sulphate of copper gives the color a blue tinge—the bi-chromate of potash a yellow. Observe this and you will never fail.

7. **Another Method.**—Blue vitriol, 5 lbs.; sugar of lead, 6¼ lbs.; arsenic, 2½ lbs.; bi-chromate of potash, 1½ ozs.; mix them thoroughly in fine powder, and add water, 3 pts., mixing well again and let stand 3 or 4 hours.

8. **Pea Brown.**—First—Take sulphate of copper, any quantity, and dissolve it in hot water. Second—Take prussiate of potash, dissolve it in hot water to make a strong solution; mix of the two solutions, as in the blue, and the color is made.

9. **Rose Pink.**—Brazil wood, 1 lb., and boil it for 2 hours, having 1 gal. of water at the end; then strain it and boil alum, 1 lb., in the same water until dissolved; when sufficiently cool to admit the hand, add muriate of tin, ¾ oz. Now have paris white, 12½ lbs., moisten up to a salvy consistence, and when the first is cool stir them thoroughly together. Let stand 24 hours.

When any of the above mixtures have stood as mentioned in their respective recipes, all that is necessary is to drain off the water by placing the preparations into muslin bags for that purpose, and then exposing the mixture to the air to dry for use.

Glass, stone or wood vessels only should be used, as the acids soon work upon iron, tin, copper, etc., giving you a tinge not desired in the color, and always observe that if water is to be mixed with strong acids, it must be added slowly, especially if in light vials, or you will break the vessel by means of the great heat which is set free by the combination. Painters can use their own judgment about making these colors; but if they do not do it for profit there will be pleasure in testing them, even in vialsful only, as the chemical action is just as fine in small as in large quantities.

BLACKSMITH'S DEPARTMENT.

FILES AND RASPS.—To Re-cut by a Chemical Process.—Dissolve saleratus, 4 ozs., to water, 1 qt., sufficient to cover the files, and boil them in it for half an hour; then take out, wash and dry them; now stand them in a jar, filling up with rainwater and sulphuric acid, in the proportion of water 1 qt., to acid 4 ozs.

If the files are coarse, they will need to remain in about twelve hours; but for fine files, six to eight hours will be all-sufficient. When you take them out, wash them clean, dry quickly, and put a little sweet oil upon them, to prevent rust.

This plan is applicable to blacksmiths, gunsmiths, tinners, coppersmiths, machinists, etc., etc. Copper and tin workers will only require a short time to take the articles out of their files, as the soft metals with which they become filled, are soon dissolved, leaving the files about as good as new. For blacksmiths and sawmill men, it will require the full time.

They may be recut two or three times, making in all more service than it took to wear out the file at first.

The preparation can be kept and used as long as you see action take place upon putting the files into it. Keep it covered when not in use.

If persons, when filing, would lift up the file, in carrying back, there would be no necessity of a recutting, but in drawing it back they soon turn a wire-edge, which the acid removes. It also thins the tooth. Many persons have doubted this fact; but I know that the common three-square file, (used for sharpening saws), when worn out and thrown by, for a year or two, may be again used with nearly the same advantage as a new one. The philosophy of it is this—the action of the atmosphere acts upon the same principle of the acid, corrodes (eats off) the surface, giving anew, a square, cutting edge. Try it, all ye doubtful; I have tried both, and know their value. Boiling in the saleratus water removes grease, and allows the acid to act upon the steel.

VARNISHES—To Prevent Rust on Iron or Steel.—Tallow, 2 ozs.; rosin, 1 oz.; melt and strain while hot.

Apply a light coat of this, and you can lay away any articles not in constant use, for any length of time, such as knives and forks, or mechanics' tools which are being laid by, or much exposed. But for axes or other new tools, which are exposed to the air before sold, you will find the following varnish preferable:

2. **Transparent, for Tools, Plows, Etc.**—Best alcohol, 1 gal.; gum sandarach, 2 lbs.; gum mastic, ½ lb. Place all in a tin can which admits of being corked; cork it tight, and shake it frequently, occasionally placing the can in hot water. When dissolved, it is ready to use.

This makes a very nice varnish for new tools which are exposed to dampness; the air, even, will soon (more or less) tarnish new work.

3. **Seek-No-Farther, For Iron or Steel.**—Take best copal varnish, and add sufficient olive oil to make it feel a little greasy; then add nearly as much spirits of turpentine as there is of varnish, and you will probably seek no farther.

4. **Transparent Blue, for Steel Plows.**—Take Demar varnish, ½ gal.; finely ground Prussian-blue, ½ oz.; mix thoroughly.

For ground steel plows, or other ground steel, one or two coats of this will be found sufficient to give a nice blue appearance, like highly-tempered steel; some may wish a little more blue; if so, add the Prussian-blue to your liking. Copal varnish is not so transparent as the Demar, but if you will have a cheap varnish, use No. 4.

6. **Black, Having a Polish, For Iron.**—Pulverized gum asphaltum, 2 lbs.; gum benzoin, ¼ lb.; spirits of turpentine, 1 gal. To make quick, keep in a warm place and shake often; shade to suit with finely ground ivory black.

Apply with a brush. And it ought to be used on iron exposed to the weather as well as on inside work desiring a nice appearance or polish. Or:

7. **Varnish For Iron.**—Asphaltum, 8 lbs.; melt it in an iron kettle, slowly adding boiled linseed oil, 5 gals.; litharge, 1 lb.; and sulphate of zinc, ½ lb.; continuing to boil for 3 hours; then add dark gum amber, 1½ lbs., and continue to boil 2 hours longer. When cool reduce to a proper consistence, to apply with a brush, with spirits of turpentine.

8. I wish here, also, to state a fact which will benefit those wishing to secure vines or limbs of trees to the side of a white house, with nails, and do not wish to see a streak of rust down the white paint, as follows:

Make a hole, in which to start the nail, putting a little strip of zinc into the hole, and drive the nail in contact with the zinc.

The electrical action of the two metals, in contact, prevent rust, proven by over eight years trial.

WELDING—Cast Steel Without Borax—Copperas, 2 ozs.; saltpeter, 1 oz.; common salt, 6 ozs.; black oxide of manganese, 1 oz.; Prussiate of potash, 1 oz.; all pulverized and mixed with nice welding sand, 3 lbs., and use it the same as you would sand.

Higher tempered steel can be used with this better than with borax, as it welds at a lower heat—such as pitchfork tines, toe-corks, etc. The pieces should be held together while heating. I have found some blacksmiths using it without the manganese; but from what I know of the purifying properties of that article upon iron, I am sure it must be preferable with it, as that is the principal purifier in the next recipe.

POOR IRON.—To Improve.—Black oxide of manganese, 1 part; copperas and common salt, 4 parts each; dissolve in soft water and boil until dry; when cool pulverize and mix quite freely with nice welding sand.

When you have poor iron which you cannot afford to throw away, heat it and roll it in this mixture, working for a time, reheating, etc., will soon free it from all impurities, which is the cause of its rottenness. By this process you can make good horse nails, even out of only common iron.

WRITING Upon Iron or Steel, Silver or Gold, Not to Cost the Tenth Part of a Cent Per Letter.—Muriatic acid, 1 oz.; nitric acid, ½ oz. Mix when it is ready for use.

Directions—Cover the place you wish to mark, or write upon, with melted beeswax; when cold, write the name plain with a file point or an instrument made for the purpose, carrying it through the wax and cleaning the wax all out of the letter; then apply the mixed acids with a feather, carefully filling each letter; let it remain from one to ten minutes, according to the appearance desired; then put on some water, which dilutes the acids and stops the process. Either of the acids, alone, would cut iron or steel, but it requires the mixture to take hold of gold or silver. After you wash off the acids it is best to apply a little oil.

MILL-PICKS.—To Temper.—To 6 qts. of soft water, put in pulverized corrosive sublimate, 1 oz., and 2 hands of common salt; when dissolved it is ready for use. The first gives toughness to the steel, whilst the latter gives the hardness. I have found those who think it better to add sal-ammoniac, pulverized, 2 ozs., to the above.

Directions.—Heat the picks to only a cherry red and plunge them in and do not draw any temper. In working mill picks, be very careful not to overheat them, but work them at as low a heat as possible. The reason why so many fail in making good picks, is that they don't work them at as low heat as they should. With care upon that point, and the above fluid, no trouble will be experienced, even on the best diamond burrs. Be sure to keep the preparation covered when not in use, as it is poison. Pigs or dogs might drink of it, if left uncovered. This is the mixture which has gained me the name of having the best preparation in use for mill picks, and the certificates on this subject, but as I have some others which are very highly spoken of, I give you a few others.

2. An English miller, after buying my book, gave me the following recipe, for which he paid ten dollars. He had used it all his life, or from the time he began business for himself, (about thirty years,) and he would use no other.

Salt, ½ teacup; saltpeter, ½ oz.; alum, pulverized, 1 teaspoon; soft water, 1 gal.; never heating over a cherry red, nor drawing any temper.

3. **Saltpeter**, sal-ammoniac and alum, of each, 2 ozs.; salt, 1½ lbs.; water, 3 gals.; and draw no temper.

There must be something in this last, as the next one I obtained at least five hundred miles from where I did this, and both from men who knew their value, and yet they resemble each other near enough to be called "The twins."

4. **Mill Picks and Saw Gummers, to Temper.**—Saltpeter and alum, each 2 ozs.; sal-ammoniac, ½ oz.; salt, 1½ lbs.; soft water,

3 gals. Heat to a cherry red and plunge them in, and draw no temper.

The steel must never be heated above a cherry red, and in working and drawing the picks there ought to be quiet an amount of light water-hammering, even after the steel is quite cool. Once more, and I am done: yet it may be possible that the last, in this case, may be the best; read it.

5. **Mill Pick Tempering as Done by Church, of Ann Arbor.**— Water, 3 gals.; salt, 2 qts.; sal-ammoniac and saltpeter, of each, 2 ozs.; ashes from white ash bark, 1 shovel, which causes the picks to scale clean and white as silver.

I obtained this recipe of a blacksmith who paid young Mr. Church five dollars for it, he coming into the shop and showing him how to work the picks, as also the composition—his instructions were, not to hammer too cold, to avoid flaws; not to heat too high, which opens the pores of the steel, nor to heat more than one or two inches of the pick when tempering. The gentleman says if care is taken in heating and working, that no other tempering liquid will equal it, yet he spoiled the first batch by overheating, even after Mr. Church had taken all the pains to show him. They (the Messrs. Church) have picks sent to them for tempering from Illinois and even Wisconsin.

BUTCHER KNIVES.—Spring Temper and Beautiful Edge.— In forging out the knife as you get it near to its proper thickness, be very careful not to heat it too high, and to water-hammer as for mill picks; when about to temper, heat only to a cherry red and hold it in such a way that you can hold it plumb as you put it into the water which prevents it from springing— put it plumb into the water and it will come out straight.

Take it from the water to the fire and pass it through the blaze until a little hot; then rub a candle over it upon both sides and back to the fire, passing it backward and forward, in the blaze, turning it over often to keep the heat even over the whole surface, until the tallow passes off as though it went into the steel; then take out and rub the candle over it again (on both sides each time and back to the fire, passing it as before, until it starts into a blaze, with a snap, being careful that the heat is even over the whole length and width of the tool, then rub the tallow over it again and back, for 3 times, quickly as it burns off; and lastly rub the tallow over it again and push it into the dust of the forge, letting it remain until cold.

If these directions are followed with dexterity you will have the temper alike from edge to back; and the edge will be the best you ever saw, as Davy Crockett used to say "It will jump higher, dive deeper," shave more hogs, bend farther without breaking, and give better satisfaction than all other knives put together."

It works equally well on drawing knives and other thin tools; and for trap springs which are to be set on dry ground; but if set in water, "pop goes the weasel" the first time the trap is sprung; but the following is the plan for tempering springs for general trapping.

2. **TRAP SPRINGS.—To Temper.**—For tempering cast steel

trap springs, all that is necessary is to heat them in the dark just that you may see it is red, then cool them in lukewarm water. This is a short recipe, but it makes long lasting springs.

The reason why darkness is required to temper springs is that a lower degree of heat can be seen in the night than by daylight; and the low heat and warm water give the desired temper.

SILVER PLATING.—For Carriage Work.—First, let the parts which are to receive the plate be filed very smooth; then apply over the surface the muriate of zinc, which is made by dissolving zinc in muriatic acid; now hold this part over a dish containing hot soft solder, (pewter solder is probably the softest) and with a swab apply the solder to the part, to which it adheres; brush off all superfluous solder, so as to leave the surface smooth; you will now take No. 2 fair, silver plate, of the right size to cover the surface of the part prepared with solder, and lay the plate upon it, and rub it down smooth with a cloth which is moistened with oil, then, with a soldering iron, pass slowly over all the surface of the plate, which melts the solder underneath it, and causes the plate to adhere as firmly as the solder does to the iron; then polish the surface, finishing with buckskin.

The soldering irons must be tinned and also kept very smooth and used at about the same heat as for soldering tin.

IRON.—To Prevent Welding.—Where it is desired to wéld two bars of iron together, for making axletrees or other purposes, through which you wish to have a bolt hole, without punching out a piece of the iron, you will take a piece of wet pasteboard, the width of the bar and the length you desire not to weld, and place it between the two pieces of iron and hold them firmly upon the pasteboard while taking the heat, and the iron will weld up to the pasteboard, but not where it is; then open the hole with swedge and punch to the desired size.

In this way blacksmith's tongs may be relaid, without the trouble of cutting the joints apart and making a new jaw. Simply fit two pieces of iron the thickness you wish to add to the jaw of the tongs, have them of the right length and width also, then take them both between the jaws and heat them so you can pound them together, that they will fit closely for a weld; now put a piece of the wet pasteboard between the pieces which you are to weld, having the handles of the tongs stand sufficiently apart that you may put on a link or ring to hold all firmly; then put into the fire, and take a good welding heat; and yet they do not weld where the paper was between them; if they stick a little at the end, just put them on the swedge and give them a little tap with the hammer, and they will fly right apart as nice as new. I am told that the dust from the ground or floor of the blacksmith shop is as good as the pasteboard, yet I have not seen that tried; but I know there is no mistake in the other; and yet I have found one blacksmith who declared he would not believe it could be done, even if he saw it.

CAST IRON—To Case Harden.—Cast iron may be case hardened by heating to a red heat, and then rolling it in a composition composed of equal parts of Prussiate of potash, sal-ammoniac and saltpeter, all pulverized and thoroughly mixed; then plunged, while yet hot, into a bath containing 2 ozs. of the Prussiate, and 4 ozs. of the sal-ammoniac to each gal. of cold water. —Scientific Artisan.

.2. **Cast Iron—The Hardest, To Soften for Drilling.**—Heat to a cherry red, having it lie level in the fire, then with a pair of cold tongs put on a piece of brimstone, a little less in size than you wish the hole to be when drilled, and it softens entirely through the piece; let it lie in the fire until a little cool, when it is ready to drill.

Sleigh shoes have been drilled by this plan in five minutes, after a man had spent half a day in drilling one-fourth of an inch into it. It is applicable to any article which can be heated without injury.

WROUGHT IRON—To Case Harden.—To case harden wrought iron, take the Prussiate of potash, finely pulverized, and roll the article in it, if its shape admits of it, if not, sprinkle the powder upon it freely, while the iron is hot.

This is applicable to iron axletrees, by heating the axletree and rolling the bottom of it in the powder, spread out for that purpose, turning it up quickly and pouring cold water upon it, getting it into the tub of cold water as quick as possible. They will wear for years, without showing wear.

2. **Welding a Small Piece of Iron Upon a Large One, With Only a Light Heat.**—It is often desirable to weld a small bit of iron upon a large bar, when the large piece must be heated equally hot as the small one. To save this:

Take borax, 1 lb.; red oxide of iron, 1 to 2 ozs.; melt them togeter in a crucible; and when cold pulverize it and keep the powder dry for use.

When you want to perform the operation, just bring the large piece to a white heat, having a good welding heat upon the small slip; take the large one from the fire, and sprinkle some of the powder upon the place, and bring the other upon it, applying the hammer smartly, and the weld will be as good as could be made with the greater heat without the powder.

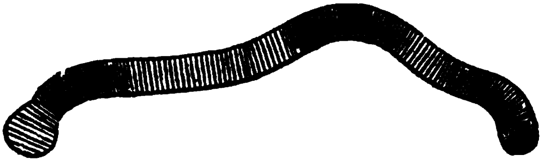
BRONZING—For Iron or Wood.—First, make a black paint; then put in a little chrome yellow, only sufficient to give it a dark-green shade; apply a coat of this to the article to be bronzed; when dry, give it a coat of varnish; and when the varnish is a little dry, dust on bronze by dipping a piece of velvet into the bronze and shaking it upon the varnish; then give it another coat of varnish, and when dry, all is complete.

Cast iron bells, which are now being extensively introduced to the farming community, will be much improved in their appearance by this bronzing, and also protected from rust, without injury to its sound. Iron fences around yards, porches, verandas, etc., will be much improved by it. It may also be applied to wood, if desired.

TRUSS SPRINGS.—Directions For Blacksmiths to Make.—Better Than the Patent Trusses.—After having tried the various kinds of trusses, over two years, having to wear one upon each side, I gave them all up as worse than useless.

I then went to a blacksmith and had springs made, bending them as represented in the cut.

Then they were bent to suit the shape of the body, and to press upon the body only sufficient, after the pads are put on. to hold back that which would otherwise protrude. The pad upon the back end of the spring I make of sole leather, covered with cotton or linen cloth, having stuffed in a little batting to make it rest as easy as possible. The front pad I make by having a piece of wood turned the shape and size of a small hen's egg, sawing it through the center lengthwise, putting two screws into it through the holes represented in the end of the spring for that purpose. The back pad is secured by one screw only. The spring is oiled, then covered with sheep skin, to prevent rusting. Then it is secured around the body with a leather strap and buckle, or with a piece of cloth sewed into a string of suitable width to sit easy where it bears upon the hip, in passing to tie upon the other end of the spring, just back of the front pad. The bend which is given the spring, before it is bent to the shape of the body, gives it room to rise when the leg is raised, without lifting the pad from its position, saving the necessity of another strap to pass around under the thigh, as with the patent truss, which is very annoying to the wearer. Make the springs of spring steel, about ½ or ⅝ of an inch in width, and about 1-16 in thickness, and of sufficient length to have a bearing just short of the spine.



TRUSS SPRING.

I now speak from eight years' personal experience, which ought to be a sufficient length of time for an experiment to be well established.

Preservation of Iron From Rust.—(By the Publisher.)—Highly polished iron can be kept in perfectly dry air without rusting at all, and the presence of an alkaline will always help to keep away rust. A most convenient method of preserving iron or bright steel articles when not in use is to give them a coating of whitewash made of lime and water. A most suitable preparation is made by mixing sweet oil and lime or chalk into a paste. This is easily applied and easily removed. Large pieces of iron, such as framework and heavy implements, are preserved from rust by covering them with paint.

Tin Plate and Terne Plate.—(By the Publisher.)—Thin plates of iron are often protected from rust and made easy to solder and to fashion in various forms by covering them with a coat-

ing of tin, making what is known as tin plate. When a mixture of tin and lead is used as a coating the sheet is called terne plate. Tin plate is made by first scouring the plate of iron, then dipping it in dilute sulphuric acid, next washing it and immersing it in melted grease, and then dipping it in melted tin. This is repeated several times. Terne plate is prepared in the same manner, lead being mixed with the tin.

TINNERS' DEPARTMENT.

BLACK VARNISH——For Coal Buckets.—Asphaltum, 1 lb.; lampblack, ¼ lb.; rosin, ½ lb.; spirits of turpentine, 1 qt.

Dissolve the asphaltum and rosin in the turpentine; then rub up the lampblack with linseed oil only sufficient to form a paste, and mix with the others. Apply with a brush.

JAPAN FLOW FOR TIN—All Colors.—Gum sandarach, 1 lb.; balsam of fir, balsam of tolu, and acetate of lead, of each 2 ozs.; linseed oil, ½ pt.; spirits of turpentine, 2 qts.

Put all into a suitable kettle, except the turpentine, over a slow fire, at first, then raise to a higher heat until all are melted; now take from the fire, and when a little cool, stir in the spirits of turpentine and strain through a fine cloth. This is transparent; but by the following modifications any or all of the various colors are made from it.

2. **Black.**—Prussian blue, ½ oz.; asphaltum, 2 ozs.; spirits of turpentine, ½ pt.

Melt the asphaltum in the turpentine; rub up the blue with a little of it, mix well and strain; then add the whole to one pint of the first, above.

3. **Blue.**—Indigo and Prussian blue, both finely pulverized, of each, ½ oz.; spirits of turpentine, 1 pt. Mix well and strain.

Add of this to one pint of the first until the color suits.

4. **Red.**—Take spirits of turpentine, ½ pt.; add cochineal, ½ oz., let stand 15 hours and strain.

Add of this to the first to suit the fancy.

5. **Yellow.**—Take 1 oz. of pulverized root of curcuma and stir of it into 1 pt. of the first, until the color pleases you, let stand a few hours and strain.

6. **Green.**—Mix equal parts of the blue and yellow together, then mix with the first until it suits the fancy.

7. **Orange.**—Mix a little of the red with more of the yellow and then with the first as heretofore, until pleased.

8. **Pink.**—Mix a little of the blue to more in quantity of the red, and then with the first until suited.

In this simple and philosophical way you get all the various colors. Apply with a brush.

GOLD LACQUER FOR TIN.—Transparent, All Colors.—Alcohol in a flask, ½ pt.; add gum shellac, 1 oz.; turmeric, ½ oz.; red sanders, ¼ oz. Set the flask in a warm place, shake frequently for 12 hours or more, then strain off the liquor, rinse the bottle and return it, corking tightly for use.

When this varnish is used, it must be applied to the work freely and flowing, or, if the work admits of it, it may be dipped into the varnish, and laid on the top of the stove to dry, which it will do very quickly; and they must not be rubbed or brushed while drying; or the article may be hot when applied. One or more coats may be laid on, as the color is required more or less light or deep. This is applied to lanterns, etc. If any of it should become thick from evaporation, at any time, thin it with alcohol. And by the following modifications, all the various colors are obtained.

2. **Rose Color.**—Proceed as above, substituting ¼ oz. of finely ground, best lake, in place of the turmeric.

3. **Blue.**—The blue is made by substituting pulverized Prussian blue, ½ oz. in place of the turmeric.

4. **Purple.**—Add a little of the blue to the first.

5. **Green.**—Add a little of the rose-color to the first.

Here again philosophy gives a variety of shades with only a slight change of materials or combinations.

LACQUER FOR BRASS.—Transparent.—Turmeric root, ground fine, 1 oz.; best dragon's blood, ½ dr.; put into alcohol 1 pt.; place in a moderate heat, shake well for several days. It must be strained through a linen cloth and put back into the bottle, and add powdered gum shellac, 3 ozs.; then keep as before in a warm place for several days, frequently shaken; then again strained, bottled and corked tight.

Lacquer is put upon metal for improving its appearance and preserving its polish. It is applied with a brush when the metal is warm, otherwise it will not spread evenly.

IRON—To Tin for Soldering or Other Purposes.—Take any quantity of muriatic acid and dissolve all the zinc in it that it will cut; then dilute it with one-fourth as much soft water as of acid, and it is ready for use.

This rubbed upon iron, no matter how rusty, cleanses it and leaves some of the zinc upon the surface, so that solder readily adheres to it, or copper as mentioned below for coppering iron or steel.

2. **Iron, Iron Wire, or Steel, to Copper the Surface.**—Rain water, 3 lbs.; sulphate of copper, 1 lb. Dissolve.

Have the article perfectly clean; then wash it with this solution and it immediately exhibits a copper surface.

Lettering on polished steel is done in this way; flowering or ornamenting can also be done in the same way. Sometimes dilute muriatic acid is used to clean the surface; the surface must be clean by filing, rubbing, or acid; then cleaned by wiping off.

COPPER—To Tin for Stew Dishes or Other Purposes.—Wash the surface of the article to be tinned, with sulphuric acid; and rub the surface well, so as to have it smooth and free of blackness caused by the acid; then sprinkle calcined and finely pulverized sal-ammoniac upon the surface, holding it over a fire where it will become sufficiently hot to melt a bar of solder which is to be rubbed over the surface; if a stew dish, put the solder into it and swab it about when melted.

You will wipe off any surplus solder, and also for the purpose of smoothing the surface, by means of a tow or cotton swab, tied or tacked to a rod. In this way any dish or copper article may be nicely tinned.

BOX METAL.—To Make for Machinery.—Copper, 4 parts; lead, 1 part—zinc is sometimes substituted for the lead—either makes a durable box for journals.

Printer's worn out type, in place of the lead, makes an improvement.

SOLDERS—For Brazing.—Copper, 3 parts; zinc, 2 parts, or sheet brass, 3 parts; zinc, 1 part.

2. **Solder for Lead.**—Take tin, 1 part; lead, 2 parts.

3. **Solder for Tin.**—Lead, 10 parts; tin, 7 parts.

4. **Solder for Britannia.**—Bismuth, ½ of one part; tin, 1 part; lead, 1 part.

BRITANNIA—To Use Old, Instead of Block Tin, In Solder.—Take old Britannia and melt it; and while hot sprinkle sulphur over it and stir for a short time.

This burns out the other articles in it, and leaves the block tin, which may now be used for making solder as good as new tin.

TIN—To Pearl, or Crystalize.—Sulphuric acid, 4 ozs.; soft water, 2 to 3 ozs., according to strength of acid; salt, 1 oz.; mix.

Heat the tin quite hot over a stove or heater; then with a sponge wet with the mixture, washing off directly with clean water. Dry the tin; then varnish it with Demar-varnish.

This brings out the crystalline nature of the tin. Used in making water coolers, spittoons, etc.

2. **Tinning Flux—Improved.**—It has been customary for tinners to use the muriate of zinc only; but if you take 1 lb. of muriatic acid and put in all the zinc it will cut; then put in 1 oz. of sal-ammoniac, you will have no more trouble with old dirty or greasy seams.

Sometimes I think it is still improved by adding to it an equal amount of soft water.

3. **Liquid Glue, for Labeling Upon Tin.**—Boiling water, 1 qt.; borax, pulverized, 2 ozs.; put in the borax; then add gum shellac 4 ozs, and boil until dissolved.

Labels put upon tin with common glue or common paste will not stick long. But this preparation obviates the difficulty entirely.

SCOURING LIQUID—For Brass, Doorknobs, Etc.—Oil of vitriol, 1 oz.; sweet oil, ½ gill; pulverized rotten stone, 1 gill; rain water, 1½ pts.; mix all, and shake as used.

Apply with a rag, and polish with buckskin or old woolen. This makes as good a preparation as can be purchased, and for less than half the money. It does not give a coating, but is simply a scourer and polisher. The following gives it a silver coating:

SILVERING POWDER—For Copper or Worn Plated Goods.—Nitrate of silver and common salt, of each, 30 grs.; cream of tartar, 3½ drs.; pulverize finely, mix thoroughly and bottle for use.

When desired to re-silver a worn spoon or other article, first clean them with the "Scouring Liquid;" then moisten a little of the powder and rub it on thoroughly with a piece of buckskin. For jewelry, see "Jewelry Department."

OIL CANS—Size of Sheet, for From 1 to 100 Gallons.—

For 1 gallon, 7x20 inches	25 gallons, 30x56 inches
For 3½ gallons, 10x28 inches	40 gallons, 36x63 inches
For 5 gallons, 12x40 inches	50 gallons, 40x70 inches
For 6 gallons, 14x40 inches	75 gallons, 40x84 inches
For 10 gallons, 20x42 inches	100 gallons, 40x98 inches
For 15 gallons, 30x42 inches	

This includes all the laps, seams, etc., which will be found sufficiently correct for all practical purposes.

GUNSMITHING DEPARTMENT.

GUN BARRELS—Browning Process—Spirits of nitre, 1 lb.; alcohol, 1 lb.; corrosive sublimate, 1 oz.; mix in a bottle and keep corked for use.

Directions.—Plug both ends of the barrel, and let the plugs stick out three or four inches, to handle by, and also to prevent the fluid from entering the barrel, causing it to rust; polish the barrel perfectly; then rub it well with quicklime by means of a cloth, which removes oil or grease; now apply the browning fluid with a clean white cloth, apply one coat and set in a warm, dark place, until a red rust is formed over the whole surface, which will require in warm weather from ten to twelve hours, and in cold weather, from fifteen to twenty hours, or until the rust becomes red; then card it down with a gunmaker's card and rub off with a clean cloth; repeat the process until the color suits, as each coat gives a darker shade.

2. Quicker and Less Laborious Process.—While in Evansville, Ind., I sold one of my books to C. Keller, a man who carries on gunsmithing, extensively. He gave me the following, which he was using, and says it makes a dark brown, with but little labor compared with the first.

Soft water, 1 qt., and dissolve in it blue vitriol, 2 ozs.; corrosive sublimate, 1 oz.; and add 1 oz. of spirits of nitre. Have the barrel bright and put on one coat of the mixture; and in 1 hour after, put on another, and let the barrel stand 12 hours; then oil it and rub it with a cloth, of course having the ends of the barrel tightly plugged, as in the first case.

But Mr. Sutherland, the gunsmith of this city, says the brown from this recipe will soon rub off; none being permanent unless carded down properly, as directed with the first recipe, that mixture being also superior.

3. Browning for Twist Barrels.—Take spirits of nitre, ¾ oz.; tincture of steel, ¾ oz.; (if the tincture of steel cannot be obtained, the unmedicated tincture of iron may be used, but it is not so good) black brimstone, ¼ oz.; blue vitriol, ⅝ oz.; corrosive sublimate, ¼ oz.; nitric acid, 1 dr. or 60 drops; copperas ¼ oz.; mix with 1½ pts. of rain water; keep corked, also, as the other, and the process of applying is also the same.

You will understand this is not to make an imitation of twist barrels, but to be used upon the real twist barrels, which brings out the twist so as to show; but if you use the first upon the real twist barrels, it will make the whole surface brown like the common barrel.

CASE-HARDENING.—For Lock-work.—Take old boots and shoes and lay them on a fire, and burn them until charred; now put them into a clean kettle and pulverize them coarsely, while hot; be careful not to get any wood coals mixed with them.

Directions.—Take the pulverized leather and place in a sheet-iron box, placing the articles to be hardened in the center of the box, or amongst the pulverized leather, and cover with a sheet-iron cover; or make the box so as to shut up; now blow up a fire of very dry charcoal; the coarser the charcoal the better; then open the fire and place the closed box in the center, cover it up and let stand from forty to sixty minutes, not blowing; but if the coals burn off and leave the box exposed, you will put on more; at the expiration of the time, take the box and pour its contents into clean, moderately cool or cold water—never use warm water; these articles will now be found very hard, and will easily break; so you will draw the temper to suit.

BROKEN SAWS.—To Mend Permanently.—Pure silver, 19 parts; pure copper, 1 part; pure brass, 2 parts; all are to be filed into powder and intimately mixed. If the saw is not recently broken, apply the tinning preparation of the next recipe.

Place the saw level upon the anvil, the broken edges in close contact, and hold them so; now put a small line of the mixture along the seam, covering it with a larger bulk of powdered charcoal; now, with a spirit-lamp and a jewelers' blow pipe, hold the coal-dust in place, and blow sufficient to melt the solder mixture; then with a hammer set the joint smooth, if not already so, and file away any superfluous solder; and you will be surprised at its strength. The heat upon a saw does not injure its temper as it does other tools, from the fact that the temper is rolled in, in place of by heat and water.

TINNING.—Superior to the Old Process.—Take first, the same as the old way; that is, muriatic acid, 1 pt., and as much pure block or sheet zinc as it will cut, in an open dish, a bowl, or something of that character, as much heat is set free and bottles are often broken by it; now take sal-ammoniac, 4 oz.; pulverize it and add to the other, and boil 10 minutes in a copper kettle—bear in mind, only copper is to be used to boil in.

You will find this will cause the solder to flow right along without difficulty. Keep corked tight when not in use.

VARNISH AND POLISH FOR STOCKS.—German.—Gum shellac, 10 ozs.; gum sandarach, 1 oz.; Venice turpentine, 1 drachm; alcohol, 95 to 98 proof, 1 gal.; shake the jug occasionally for a day or two, and it is ready for use.

After using a few coats of this you can have a German polish, by simply leaving out 8 ozs. of the shellac; and a coat or two of the polish makes an improvement on the varnish, and does not require the rubbing, that it would if the full amount of shellac was used, in the last coat or two. It is recommended also to put upon cuts, sores, etc., burns excepted.

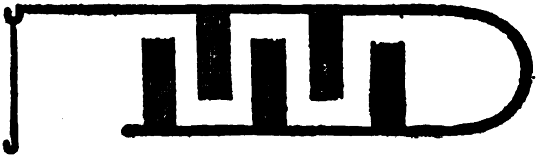
JEWELERS' DEPARTMENT.

GALVANIZING.—Without a Battery.—Dissolve cyanuret of potassium, 1 oz., in pure rain or snow water, 1 pt., to which add a dr. bottle of the chloride of gold, and it is ready to use. Scour the article to be plated, from all dirt and grease, with whiting, chalk, or rotten stone, pulverized, and put in alcohol, using a good brush—or the "Polishing Compound," No. 3; if there are cracks, it may be necessary to put the article in a solution of caustic potash—at all events, cvery particle of grease and dirt must be removed; then suspend the article to be plated in the cyanuret of gold solution, with a small strip of zinc cut about the width of a common knitting-needle, hooking the top over a stick which will reach across the top of the jar holding the solution.

Every five to ten minutes the article should be taken out and brushed over with the scouring preparation; or on smooth surfaces it may be rinsed off and wiped with a piece of cotton cloth, and return until the coating is sufficiently heavy to suit.

When the plating fluid is not in use, bottle it, keeping it corked, and it is always ready for use, bearing in mind that it is as poison as arsenic, and must be put high, out of the way of children, and labeled—Poison, although you will have no fears in using it; yet accidents might arise, if its nature were not known. The zinc strip, as far as it reaches into the fluid, will need to be rubbed occasionally, until it is bright.

2. **Galvanizing With a Shilling Battery.**—I have found some persons who thought it much better to use a simple battery, made by taking a piece of copper rod about three-eighths of an inch in thickness, and about eighteen or twenty inches long, and berd it, as seen in the accompanying cut:



SHILLING BATTERY.

The rod should be about 4 or 5 inches in the circle or bend, then run parallel, having 5 strips of sheet zinc, an inch wide and 6 to 8 inches long, bent in their center around the copper, with a rivet through them, close to the rod, as shown above; these strips of zinc are to be placed into tumblers, the rod resting on top of the tumblers, which are to be nearly filled with rain water; then pour into each tumbler a little oil of vitriol, until you see that it begins to work a little on the zinc.

The article to be plated is to be suspended upon the strip of zinc, as represented upon the long end of the rod, which is to be placed as before spoken of, in a jar containing the gold solution, instead of having it upon the stick spoken of when plating without the battery. And all the operations are the same as before described.

JEWELRY.—Cleansing and Polishing Compound.—Aqua ammonia, 1 oz.; prepared chalk, ⅛ oz.; mix, and keep corked.

To use, for rings, or other smooth-surfaced jewelry, wet a bit of cloth with the compound, after having shaken it, and rub the article thoroughly; then polish by rubbing with a silk handkerchief or piece of soft buckskin. For articles which are rough-surfaced, use a suitable brush. It is applicable for gold, silver, brass, britannia, plated goods, etc.

FARRIERS' DEPARTMENT.

CHOLIC.—Cure for Horses or Persons.—Spirits of turpentine, 3 oz.; laudanum, 1 oz.; mix, and give all for a dose, by putting it into a bottle with half pint of warm water, which prevents injury to the throat. If relief is not obtained in one hour, repeat the dose, adding half an ounce of the best powdered aloes, well dissolved together, and have no uneasiness about the result.

Symptoms.—The horse often lies down, suddenly rising again, with a spring; strikes his belly with his hind feet, stamps with his forefeet, and refuses every kind of food, etc. I suppose there is no medicine in use, for cholic, either in man or horse, equal to this mixture.

For persons, a dose would be from 1 to 2 teaspoons—children or weak persons less, acording to the urgency of the symptoms, to be taken in warm water or warm tea.

I have been familiar with it for about five years, and know that it has been successful in many cases—all where it has been used. Many think it the best cholic remedy in the world.

2. **Another.**—Laudanum, ½ oz.; sulphuric ether, 1 oz. Mix and for a horse give all at a dose, in warm water, as above. Dose for a person, as the first.

A Mr. Thorpe, of whom I obtained this recipe, tells me he has cured colic in horses in every case with the first dose, except one, and in that case by repeating the dose thirty minutes after the first. There is no question but what it is good, and some would prefer it to the turpentine. I know it is valuable.

BOTS.—Sure Remedy.—When a horse is attacked with bots, it may be known by the occasional nipping at their own sides, and by red pimples or projections on the inner surface of the upper lip, which may be seen plainly by turning up the lip.

First, then, take new milk, 2 qts.; molasses, 1 qt.; and give the horse the whole amount. Second, 15 minutes afterward give very warm sage tea, 2 qts. Lastly, 30 minutes after the tea, you will give of currier's oil, 3 pts. (or enough to operate as physic). Lard has been used, when the oil could not be obtained, with the same success.

The cure will be complete, as the milk and molasses cause the bots to let go their hold, the tea puckers them up, and the oil carries them entirely away. If you have any doubt, one trial will satisfy you perfectly. In places where the currier's oil cannot be obtained, substitute the lard, adding three or four ounces of salt with it; if no lard, dissolve a double handful of salt in warm water, three pints, and give all.

RING-BONE AND SPAVINS.—To Cure.—Egyptiacum and wine vinegar, of each 2 oz.; water of pure ammonia, spirits of turpentine, and oil of origanum, of each, 1 oz.; euphorbium and cantharidies, of each, ½ oz.; glass made fine and sifted through gauze, 1 dr.; put them in a bottle, and when used let them be well shaken. This is to be rubbed upon the bone enlargement with the hand or spatula, for half an hour each morning, for six or seven mornings in succession. Let the horse be so tied that he cannot get his mouth to the place or 3 or 4 hours, otherwise he will blister his mouth and blemish the part. Then let him run until the scab comes off of itself without scraping, which injures the roots of the hair. Then repeat as before, and follow up for 3 or 4 times blistering, and all bone enlargements will be re-absorbed, if not of more than a year or two's standing.

It is also good for callous sinews, and strains of long standing, spavins, big-head, etc., but if there are ring-bones or spavins of so long standing that this does not cause their cure, you will proceed as follows:

2. Add to the above compound, corrosive sublimate in powder, ½ oz.; oil of vitriol, ½ oz., and common salt, ½ oz.; when it is again ready for use, always shaking well as you use either preparation.

Now clip the hair and prick the bone or callous part as full of holes as you can with a pegging-awl, which is just long enough to break through the callous part only. Or a better way to break up this bony substance is to have a handle like a pegging-awl handle, with three or four awls in it, then tap it in with a stick and give it a wrench at the same time, which does the hurting part with more speed. This done, bathe the part with vinegar, until the blood stops flowing; then apply the double compound as at first, for four or five mornings only, repeating again if necessary; and ninety-nine out of every hundred ring-bones or spavins will be cured; and most of them with only the first preparation. The Egyptiacum is made as follows:

3. Take verdigris and alum in power, of each 1½ ozs.; blue vitriol, powdered, ½ oz.; corrosive sublimate, in powder, ½ oz.; vinegar, 2½ ozs.; honey, ½ lb.; boil over a slow fire until of a proper consistence. When used it must be stirred up well, as a sediment will deposit on some of the articles.

If the hair does not come out again after using the last blister, use the "Good Samaritan Liniment" freely, on the part; but the first will never disturb the growth of hair. It is best always to commence this kind of treatment early in the season, so as to effect a cure before cold weather comes on.

4. **O. B. Bangs' Cure for Ring-Bone and Spavin.**—Take of cantharides pulverized; British oil; oils of origanum and amber; and spirits of turpentine, of each 1 oz.; olive oil, ½ oz.; oil of vitriol, 3 drs.; put all, except the vitriol, into alcohol, stir the mixture, then slowly add the vitriol and continue to stir until the mixture is complete, which is known by its ceasing to smoke. Bottle for use.

Directions.—Tie a piece of sponge upon a stick and rub the preparation by this means, upon the spavin or ring-bone as long as it is absorbed into the parts; twenty-four hours after, grease well with lard; and in twenty-four hours more wash off well with soap-suds. Mr. Bangs lives at Napoleon, Mich., and has sold books for me nearly two years. He says one application will generally be sufficient for spavins, but may need two; ring-bones always require two or three applications, three or four days apart, which prevents the loss of hair; if not put on oftener than once in three or four days, the hair not coming out at all. Said to cure wind-galls, splints, etc. He obtained $5 for curing a neighbor's horse of ring-bone with this preparation; stopping all lameness, but not removing the lump.

5. In very bad cases of long standing, he thinks it preferable to first apply the following:

Take alcohol, 1 pt.; sal-ammoniac, corrosive sublimate, and oil of spike, of each 1 oz.; mix.

Apply, by washing off and using lard afterward, as above directed, washing also forty-eight hours after; and when dry, apply the first liniment once or twice, according to directions. The object of this last is to open the pores of the skin, and soften the lump.

6. **Ring-bone Remedy.**—Pulverized cantharides, oils of spike, origanum, amber, cedar, Barbadoes tar, and British oil, of each, 2 ozs.; oil of wormwood, 1 oz.; spirits of turpentine, 4 ozs.; common potash, ½ oz.; nitric acid, 6 oz.; and oil of vitriol (sulphuric acid), 4 ozs.; lard, 3 lbs.

Directions.—Melt the lard and slowly add the acids, stir well and add the others, stiring until cold. Clip off the hair and apply by rubbing and heating in; in about three days or when it is done running, wash off with suds and apply again. In old cases it may take three or four weeks, but in recent cases two or three applications have cured. It has cured long standing cases.

7. **Rawson's Ring-bone and Spavin Cure.**—Venice turpentine and Spanish-flies, of each 2 ozs.; euphorbium and aqua ammonia, of each, 1 oz.; red precipitate, ½ oz.; corrosive sublimate, ¼ oz.; lard, 1½ lbs. Pulverize all and put into the lard; simmer slowly over coals, not scorch or burn, and pour off free of sediment.

Directions.—For ring-bones, cut off the hair and rub the ointment well into the lumps once in forty-eight hours. For spavins, once in twenty-four hours for three mornings, has perfectly cured them. Wash well, each application, with suds, rubbing over the place with a smooth stick to squeeze out a thick yellow matter.

Mr. Rawson, of Rawsonville, Mich., has cured some exceedinly bad cases of ring-bones, one as thick as a man's arm; and spavins as unpromising in size. If properly cooked it will foam like boiling sugar.

8. **Indian Method.**—Bind a toad upon it; or two, if one does not cover it, and keep it on from 8 to 10 days.

An Indian cured a horse in this way, near St. Louis, for which he coveted and received a rifle. The cure proved permanent.

9. **Bone-Spavins.—French Paste.—$300 Recipe.**—Corrosive

sublimate, quicksilver and iodine, of each 1 oz.; with lard only sufficient to form a paste.

Directions.—Rub the quicksilver and iodine together, then adding the sublimate and finally the lard, rubbing thoroughly.

Shave off the hair the size of the bone enlargement; then grease all around it, but not where the hair is shaved off; this prevents the action of the medicine, only upon the spavin; now rub in as much of the paste as will lie on a 3-cent piece only, each morning for four mornings only; in from seven to eight days the whole spavin will come out; then wash out the wound with suds, soaking well, for an hour or two, which removes the poisonous effects of the medicine and facilitates the healing, which will be done by any of the healing salves; but I would prefer the green ointment to any other in this case.

Mr. Andrews, late of Detroit, who during his life knew a good horse, and also desired to know how to take good care of them, did not hesitate to pay $300 for this recipe after seeing what it would do; he removed a spavin from a mare's leg with it, and she afterward won him more than the expense.

10. **Bone-Spavins.Norwegian Cure.**—S. B. Marshall, the Champion Horse-Shoer and Farrier, of White Pigeon, Mich., obtained this plan of an old Norwegian Farrier, and also his plan of curing poll-evil, which see, and assures me that he has been very successful with them. I obtained them of him for the purpose of publication, and sincerely think I can recommend them to all who need them:

Take dog's grease, ½ pt.; best oil of origanum, 1½ ozs.; pulverized cantharides, ½ oz. Mix and apply each morning for three mornings; heating it in with a hot iron each time; then skip 3 mornings, and apply again, as before, until it has been applied 9 times; after which wait about 10 days, and if it is not all gone, go over again in the same way.

He says it does not remove the hair, but that it cures the largest and worst cases. He gives a test for good oil of origanum, saying that much of it is reduced with turpentine; and if so reduced, that it will spread on the skin, like turpentine; but if good, that it does not spread on the skin, but stands, like other oil, where a drop is put on. I am not certain about the genuineness of this test; yet I find quite a difference in the spreading of the oils; for that which is known to contain turpentine spreads fast and freely; whilst that which is believed to be pure spreads very slowly, yet does finally spread. The pure is of a dark wine color, whilst the poor is of a lighter shade, and somewhat cloudy.

11. **Spavin Liniment.**—Oils of spike, origanum, cedar, British and spirits of turpentine, of each 1 oz.; Spanish-flies, pulverized, ½ oz.

Apply once in six to nine days only. Removes the lump of spavins, splints, curbs, etc., if of recent occurrence; and the man of whom I obtained it says he has scattered poll-evils before breaking out, with cedar oil alone.

12. **Another.**—Alcohol and spirits of turpentine, of each ½ pt.; gum comphor. laudanum, and oil of cedar, of each 1 oz.;

oils of hemlock and rhodium and balsam of fir, of each ½ oz.; iodine, 1 dr.; mix.

Apply night and morning, first washing clean and rubbing dry with a sponge; then rub the liniment into the spavin with the hand. It causes a gummy substance to ooze out, without injury to the hair—has cured ring-bones, also removing the lumps in recent cases. It cured the lameness in a case of three years' standing.

13. **Splint and Spavin Liniment.**—Take a large mouthed bottle and put into it oil of origanum, 6 ozs.; gum camphor 2 ozs.; mercurial ointment, 2 ozs.; iodine ointment, 1 oz.; melt by putting the bottle into a kettle of hot water.

Apply it to bone-spavins or splints twice daily, for four or five days. The lameness will trouble you no more. I have had men cure their horses with this liniment and remark that this recipe alone was worth more than the price of the book.

14. **Bog-Spavin and Wind-Gall Ointment, also Good for Curbs, Splints, Ring-Bones, and Bone-Spavin.**—Take pulverized cantharides, 1 oz.; mercurial ointment, 2 ozs.; tincture of iodine, 1½ ozs.; spirits of turpentine, 2 ozs.; corrosive sublimate, 1½ drs.; lard, 1 lb.

Mix well, and when desired to apply, first cut off the hair, wash well and anoint, rubbing it in with the hand or glove, if preferred. Two days after, grease the part with lard, and in two days more, wash off and apply the ointment again. Repeat the process every week, as long as necessary.

SWEENY.—Liniment.—Alcohol and spirits of turpentine, of each 8 ozs.; camphor gum, pulverized cantharides, and capsicum, of each 1 oz.; oil of spike, 3 ozs. Mix.

Perhaps the best plan is to tincture the capsicum first, and use the tincture instead of the powder, by which means you are free of sediment; bathe this liniment in with a hot iron. The first case has yet to be found where it has not cured this disease when faithfully followed.

2. **Another.**—Sal-ammoniac, 2 ozs.; corrosive sublimate, 1 oz.; alcohol, 1 qt.; water, 1 qt.; pulverize and mix.

This last has cured many cases of sweeny, and also kidney complaints, known by a weakness in the back, of horses or cattle. Bathe the loins with it; and give one to two tablespoons at a dose, daily.

POLL-EVIL AND FISTULA.—Positive Cure.—Common potash, ¼ oz.; extract of belladona, ½ dr.; gum arabic, ¼ oz. Dissolve the gum in as little water as practicable; then having pulverized the potash, unless it is moist, mix the gum water with it and it will soon dissolve; then mix in the extract and it is ready to use; and it can be used without the belladona, but it is more painful without it, and does not have quite as good an effect.

Directions.—The best plan to get this into the pipes is by means of a small syringe, after having cleansed the sore with soap-suds; repeat once in two days, until all the callous pipes and hard fibrous base around the poll-evil or fistula is completely destroyed. Mr. Curtis, a merchant of Wheaton, Ill., cured a poll-evil with this preparation by only a single application, as the mare estrayed and was not found for two months—then completely sound; but it will generally require two or three applications.

This will destroy corns and warts, by putting a little of it upon the wart or corn, letting it remain from five to ten minutes, then wash off and apply oil or vinegar, not squeezing them out, but letting nature remove them.

2. **Potash, to Make.**—If you cannot buy the potash, called for in the last recipe, you can make it by leaching best wood ashes and boiling down the lye to what is called black salts, and continuing the heat in a thick kettle until they are melted; the heat burns out the black impurities and leaves a whitish gray substance, called potash.

This patash, pulverized and put into all the rat-holes about the cellars, causes them to leave in double quick time, as mentioned in the "Rat Exterminator." The black salts will do about as well for rats, but is not quite so strong. They get their feet into it, which causes a biting worse than their own, and they leave without further ceremony.

Potash making in timbered lands is carried on very extensively; using the thick, heavy potash-kettle to boil and melt in; then dipping it out into three and five-pail iron kettles to cool.

3. **Poll-Evil and Fistula—Norwegian Cure.**—Cover the head and neck with two or three blankets; have a pan or kettle of the best warm cider vinegar; holding it under the blankets; then steam the parts by putting hot stones, brick, or iron, into the vinegar, and continue the operation until the horse sweats freely; doing this 3 mornings and skipping 3, until 9 steamings have been accomplished.

Mr. Marshall says the pipes, by this time, will seem to have raised up and become loose, except the lower end, which holds upon the bone or tendons, like a sucker's mouth; the apparent rising being caused by the going down of the swelling in the parts; now tie a skein of silk around the pipes and pull them out; washing the parts with weak copperas water until the sore heals up and all is well. He told me that he cured, in this way, a horse which has interfered until a pipe has formed at the place of interference, upon the leg, that when drawn out was as long as his finger. See the "Norwegian Cure for Bone-Spavin."

4. **Another.**—Rock salt and blue vitriol, of each 1 oz.; copperas, ½ oz.; pulverize all finely and mix well.

Fill a goose-quill with the powder and push it to the bottom of the pipe, having a stick in the top of the quill, so that you can push the powder out of the quill, leaving it at the bottom of the pipe; repeat again in about four days, and in two or three days from that time you can take hold of the pipe and remove it without trouble.

5. **Poll-Evil, to Scatter.**—Take a quantity of mandrake root, mash and boil it; strain and boil down until rather thick; then form an ointment by simmering it with sufficient lard for that purpose.

Anoint the swelling once a day, for several days, until well. It has cured them after they were broken out, by putting it into the pipes a few times, also anointing around the sore.

6. **Another.**—Poll-evils and Fistulas have been cured by pushing a piece of lunar caustic into the pipe, then filling the hole with currier's oil. Or,

7. **Another.**—Corrosive sublimate the size of a common bean, pulverized and wrapped in tissue paper, and pressed to the bottom of the pipes, leaving it in eight days, then take out, and applying the blue ointment (kept by druggists), has cured them. Or:

8. **Another.**—Arsenic, the size of a pea, treated in the same way, has cured the same disease. But if the Norwegian plan will work as recommended, it is certainly the best of all.

9. **Another.**—Oil of vitriol put into the pipes has cured many poll-evils.

I found one man, also, who had cured poll-evil by placing a barrel of water about fifteen feet high, on a platform, upon two trees—administering a shower bath daily upon the sore; drawing the water by a faucet, through a dinner horn placed little end down; tying the horse so as to keep him in position until the water all runs out. Fifteen or twenty baths cured him, but it broke out again the next season, when a few more baths made a final cure.

LOOSENESS OR SCOURING IN HORSES OR CATTLE.—In Use Over Seventy Years.—Tormentil root, powdered. Dose for a horse or cow, 1 to 1½ oz. It may be stirred in 1 pt. of milk and given, or it may be steeped in 1½ pts. of milk then given from 3 to 5 times daily until cured.

It has proved valuable also for persons. Dose for a person would be from one-half to one-teaspoon steeped in milk; but if used for persons I should recommend that half as much rhubarb be combined with it.

An English gentleman from whom it was obtained, had been familiar with its use nearly eighty years, and never knew a failure, if taken in any kind of seasonable time. The tormentil, or septfoil, is an European plant, and very astringent.

2. **Beef Bones for Scours.**—Burn the bones thoroughly and pulverize finely; then give 1 tablespoon in some dry feed, 3 times daily, until checked.

This preparation has thirty years' experience of an American gentleman, near Fentonville, Mich., to recommend it to general favor.

3. **Scours and Pin-Worms of Horses and Cattle.**—White ash bark burnt to ashes and made into rather a strong lye; then mix ½ pt. of it with warm water, 1 pt., and give all, 2 or 3 times daily.

Whenever it becomes certain that a horse or cow is troubled with pin-worms, by their passing from the bowels, it is best to administer the above, as they are believed to be the cause, generally, of scours, and this remedy carries off the worms, thus curing the inflammation by removing the cause.

HORSE OINTMENT.—De Gray or Sloan's.—Rosin, 4 ozs.;

beeswax, 4 ozs.; lard, 8 ozs.; honey, 2 ozs. Melt these articles slowly, gently bringing to a boil; and as it begins to boil, remove from the fire and slowly add a little less than a pint of spirits of turpentine, stirring all the time this is being added, and stir until cool.

This is an extraordinary ointment for bruises, in flesh or hoof, broken knees, galled backs, bites, cracked heels, etc., etc.; or when a horse is gelded, to heal and keep away flies. It is excellent to take fire out of burns or scalds in human flesh also.

CONDITION POWDERS.—Said to Be St. John's.—Fenugreek, cream of tartar, gentian, sulphur, saltpetre, rosin, black antimony and ginger, equal quantities of each, say 1 oz.; all to be finely pulverized; cayenne, also fine, half the quantity of any one of the others, say ½ oz. Mix thoroughly.

It is used in yellow water, hide-bound, coughs, colds, distemper, and all other diseases where condition powders are generally administered. They carry off gross humors and purify the blood. Dose—In ordinary cases give two teaspoons once a day, in feed. In extreme cases give it twice daily. If these do not give as good satisfaction as St. John's or any other condition powder that costs more than double what it does to make this, then I will acknowledge that travel and study are of no account in obtaining information.

2. **Cathartic Condition Powder.**—Gamboge, alum, saltpetre, rosin, copperas, ginger, aloes, gum-myrrh, salts, and salt, and if the horse is in a very low condition, put in wormwood, all the same quantities; viz., 1 oz each. Dose—One tablespoon in bran twice daily; not giving any other grain for a few days; then once a day with oats and other good feed.

This last is more applicable for old worn-down horses which need cleaning out and starting again into new life; and in such cases, just the thing to be desired.

HORSE LINIMENTS.—For Stiff-Neck from Poll-Evils.—Alcohol, 1 pt.; oil of cedar, origanum and gum camphor, of each 2 ozs.; oil of amber, 1 oz.; use freely.

2. **English Stable Liniment.—Very Strong.**—Oil of spike, aqua ammonia, and oil of turpentine, of each 2 ozs.; sweet oil and oil of amber, of each 1½ ozs.; oil of origanum, 1 oz. Mix.

Call this good for anything, and always keep it in the stable as a strong liniment; the Englishman's favorite for poll-evils, ring-bones, and all old lameness, inflammations, etc.; if much inflammation, however, it will fetch the hair, but not destroy it.

3. **Nerve and Bone Liniment.**—Take beef's gall, 1 qt.; alcohol, 1 pt.; volatile liniment, 1 lb.; spirits of turpentine, 1 lb.; oil of origanum, 4 ozs.; aqua ammonia, 4 ozs.; tincture of cayenne, ½ pt.; oil of amber, 3 ozs.; tincture of Spanish-flies, 6 ozs. Mix.

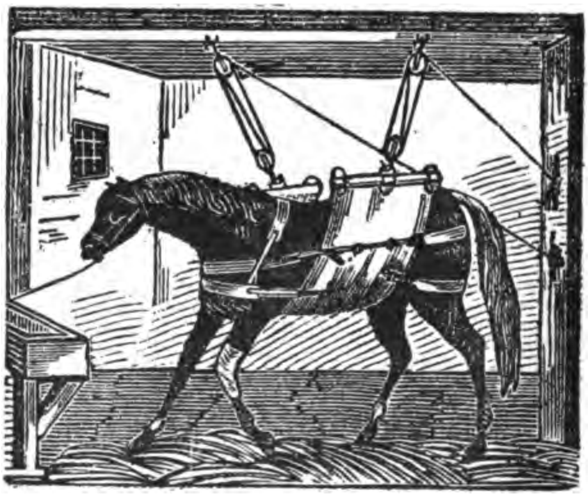
Uses too well known to need description. This is more particularly applicable to horse flesh.

4. **Liniment for One Shilling a Quart.**—Best vinegar, 2 qts.; saltpetre, pulverized, ½ lb.; mix and set in a warm place until dissolved.

It will be found valuable for spavins, sprains, strains, bruises, old swellings, etc.

BROKEN LIMBS.—Treatment, Instead of Inhumanly Shooting the Horse.—In the greater number of fractures it is only necessary to partially sling the horse by means of a broad piece of sail or other strong cloth (as represented in the figure) placed under the animal's belly, furnished with two breechings and two breast-girths, and by means of ropes and pulleys attached to a crossbeam above he is elevated or lowered, as may be required.

It would seldom be necessary to raise them entirely off of their feet, as they will be more quiet, generally, when allowed to touch the ground or floor. The head-stall should be padded, and ropes reaching each way to the stall, as well as forward. Many horses will plunge about for a time, but soon quiet down, with an occasional exception; when they become quiet, set the bone, splint it well, padding the splints with batting, securing carefully, then keep wet with cold water, as long as the least inflammation is present, using light food, and a little water at a time, but may be given often.



SUPPORTING APPARATUS IN LAMENESS OF HORSES.

If he is very restive, other ropes can be attached to the corner rings, which are there for that purpose, and will afford much additional relief to the horse.

GREASE-HEEL AND COMMON SCRATCHES.—To Cure.—Lye made from wood ashes, and boil white-oak bark in it until it is quite strong, both in lye and bark ooze; when it is cold, it is ready for use.

First wash off the horse's legs with dish-water or castile soap; and when dry, apply the ooze with a swab upon a stick which is sufficiently long to keep out of his reach, as he will tear around like a wild horse, but you must wet all well once a a day, until you see the places are drying up. The grease-heel may be known from the common scratches by the deep cracks, which do not appear in the common kind. Of course this will fetch off the hair, but the disease has been known to fetch off the hoof; then to bring on the hair again, use salve made by stewing sweet elder bark in old bacon; then form the salve by adding a little rosin according to the amount of oil when stewed, about a quarter of a pound to each pound of oil.

2. **Another.**—Verdigris, ½ oz.; whisky, 1 pt., are highly recommended for grease-heel.

3. **Common Scratches.**—Use sweet oil, 6 oz.; borax, 2 oz., sugar of lead, 2 oz.; mix, and apply twice daily, after washing off with dish-water, and giving time to allow the legs to dry.

These plans have been used for years, by George Clemm, of Logansport, Indiana, and he assured me that the worst cases will be cured, of either disease, in a very few days.

4. **Another.**—Copperas and chamber-lye are known to be good for common scratches, applied, as the last, after washing with dish-water and drying. This last can be tried first, as it is easily obtained, and if it does not succeed you will not fail with the other.

SADDLE AND HARNESS GALLS.—Bruises, Abrasions, Etc. —Remedy.—White lead and linseed oil mixed as for paint, is almost invaluable in abrasions, or galls from the saddle or collar, or from any other cause, it will speedily aid the part in healing.

Applied with a brush to the leg of a horse, the outer coating of hair and skin of which was torn off, caused it to heal and leave no scar. It is good for scratches and all sores upon horses, or other animals, and equally good for men. It forms an air-tight coating, and soothes pain. Every farmer should keep a pot and brush ready for use. White lead is the carbonate of the metal, and when pure is very white. That having a greyish tint is impure, being generally adulterated. For use as a paint, a lead color is produced by adding lamp-black, and a drab or stone color, by adding burned umber.

In applying it for scratches, first wash them clean with soap and water, then apply. Some persons prefer lamp oil. If that is used you will mix both together until the oil assumes a light straw color. When the horse comes in at night, his legs should be washed perfectly clean and rubbed perfectly dry. Then apply the mixture, rubbing it well to the skin. Two or three applications are sufficient to effect a perfect cure, no matter how bad the case may be.—Correspondence of the "Country Gentleman."

To give confidence in this, I would say that a lady, at Lafayette, Ind., told me she cured herself of salt-rheum with white-lead and sweet oil only.

2. **Another.**—Alcohol and extract of lead, of each 2 ozs.; soft

water, 4 ozs.; spirits of sal-ammoniac, 1 oz.; white copperas, ½ oz. Mix all and shake as used.

"Knowlson's Complete Farrier" speaks very highly of this last preparation, which can be tried, should the first above fail.

3. **Sores from Chafing of the Bits.**—Chloroform and sulphuric ether, equal parts of each. Keep closely corked.

Sponge off the mouth with water every time the bits are taken out; then wet well with the mixture. It will also be found valuable to remove soreness from any cause, on man or horse.

4. **Another.**—White ashes and spirits of turpentine, of each 1½ tablespoons; black pepper, ground, 1 tablespoon; lard to make 1 pt. of all; mix well and anoint.

HEAVES.—Great Relief.—Heaves, the common name for any difficulty in the breathing of a horse, is susceptible of great alleviation by attention to the character and quantity of food to be eaten by the animal, as every one knows. If a horse suffering from this disease is allowed to distend his stomach at his pleasure, with dry food entirely, and then to drink cold water, as much as he can hald, he is nearly worthless. But if his food be moistened, and he be allowed to drink a moderate quantity only at a time, the disease is much less troublesome.

A still further alleviation may be obtained from the use of balsam of fir and balsam of copaiba 4 ozs. each; and mix with calcined magnesia sufficiently thick to make it into balls; give a middling sized ball, night and morning, for a week or 10 days. This gives good satisfaction, and is extensively sold by Eberbach & Co., druggists of this city.

2. **Another.**—An old Farrier assures me that lobelia, one teaspoon once a day, in his feed, for a week, and then once a week; that you can hardly tell whether a horse ever had the heaves or not.

3. **Another.**—H. Sisson, another Farrier, gives me a cure which somewhat resembles the ball first given under this head, and thus each one supports the other.

He takes calcined magnesia, balsam of fir, and balsam of copaiba, of each 1 oz.; spirits of turpentine, 2 ozs.; and puts them all into 1 pt. of best cider vinegar, and gives for a dose 1 tablespoon in his feed, once a day for a week; then every other day for 2 or 3 months.

The horse will cough more at first, but looser and looser until cured. Wet his hay with brine, and also wet his feed.

4. **Another.**—Mr. Bangs highly recommends the following: Lobelia, wild turnip, elecampane and skunk cabbage, equal parts of each. Make into balls of common size and give one for a dose, or make a tincture, by putting 4 ozs. of the mixture into 2 qts. of spirits; and after a week put 2 tablespoons into their feed once a day for a month or two.

5. **Another.**—Oyster shells, 1 peck; burn into lime and pulverize; mix a single handful of it with ½ gill of alcohol, then mix it with the oats each morning until all given.

This for bellows-heaves has done very much good. Horseradish grated and put in with the feed has benefitted. Cabbage, as common feed, is good to relieve, or any juicy food, like pumpkins, etc., etc., will be found to relieve very much. Farmers who have their horses always at home can keep them comfortable with some of the foregoing directions; but broken-winded horses might as well be knocked in the head as to attempt to travel with them, expecting any satisfaction to horse or driver.

6. **Another.**—A correspondent of the "Country Gentleman" says that "heaves may be greatly alleviated by feeding raw fat pork.

"Commence with a piece of pork, say a cubic inch, chopped very fine, and mixed with the wetted grain or cut feed, twice a day for two or three days. Then from day to day increase the quantity and cut less fine, until there is given with each feed such a slice as usually by a farmer's wife is cut for frying—nearly as large as your hand, cut into fifteen or twenty pieces.

"Continue this for two weeks, and the horse is capable of any ordinary work without distress, and without showing the heaves. I have experience and observation for the past ten years as proof of the above."—J., of Burlington, Vt.

DISTEMPER.—To Distinguish and Cure.—If it is thought that a horse has the distemper, and you do not feel certain, wet up bran with rather strong weak lye—if not too strong they will eat it greedily; if they have the distemper, a free discharge from the nostrils and a consequent cure will be the result, if continued a few days; but if only a cold, with swellings of the glands, no change will be discovered.

SHOEING HORSES.—For Winter Travel.—N. P. Willis, of the "Home Journal," in one of his recent Idlewild letters, says:

"You have discovered, of course, that you cannot have uninterrupted winter riding with a horse shod in the ordinary way. The sharp points of the frozen mud will wound the frog of the foot; and with snow on the ground, the hollow hoof soon collects a hard ball, which makes the footing very insecure. But these evils are remedied by a piece of sole leather nailed on under the shoe—a protection to the hoof which makes a surprising difference in the confidence and sure-footedness of the animal's step."

FOUNDER.—Remedy.—Draw about 1 gal. of blood from the neck; then drench the horse with linseed oil, 1 qt.; now rub the forelegs, long and well, with water as hot as can be borne without scalding.

This remedy entirely cured a horse which had been foundered on wheat two days before the treatment began.

PHYSIC.—Ball for Horses.—Barbadoes aloes from 4 to 5 or 6 drs. (according to the size and strength of the horse); tartrate of potassia, 1 dr.; ginger and castile soap, of each 2 drs.; oil of anise or peppermint, 20 drops; pulverize, and make all into one ball with thick gum solution.

Before giving a horse physic, he should be prepared for it by feeding scalded bran, in place of oats, for two days at least, giving also water which has the chill taken off, and continue this feed and drink, during its operation. If it should not operate in forty-eight hours, repeat half the dose.

2. **Physic for Cattle.**—For cattle, take half only of the dose, above, for a horse, and add to it glauber salts, 8 ozs.; dissolve all in gruel, 1 pt., and give as a drench; for cattle are not easily managed in giving balls, neither is their construction adapted to dry medicine.

There is not the need of preparation for cattle, generally, as for horses, from the fact of their not being kept up to grain; if they are, however, let the same precautions be observed as in "Physic Ball for Horses."

TAMING.—Principles Applied to Wild and Vicious Horses.—I have thought, in closing up this Department, that I could not devote a page to a better purpose than to the so-called secret of taming. For it is a secret, but it lies in a different point from what is generally believed, which I will attempt to show.

Several persons are advertising books for taming wild horses, and other persons are going about teaching the art to classes in private. Probably the pupils get their money's worth. But, why do so many fail? The whole secret lies in this, that many persons can never handle a horse, with all the instruction in the world—it is not in them. They cannot establish a sympathy between themselves and the horse, and if they become horse trainers they have only mistaken their calling, and the money they laid out is perhaps as cheap a way as they could be taught their mistake.

To be a successful horse trainer, he must have a sympathy with the horse, and a personal power of control. This reminds us of an old gentleman's remarks on the subject of sweeny. He said: "There were a great many recipes of penetrating oils, applications, etc., but the great secret was in faith," without which no person will persevere a sufficient length of time with either of them. This holds good in all diseases, as well as in handling or taming a horse.

The mystery or secret, then, is in knowing how, and having the stamina (power) to do it.

As for recipes, they consist in using the horse-castor or wart, which grows upon the inside of the leg, grated fine, oil of cumin, and oil of rhodium, kept separate in air-tight bottles; these all possess peculiar properties for attracting and subduing animals.

"Rub a little oil of cumin upon your hand, and approach the horse in the field, on the windward side, so that he can smell the cumin. The horse will let you come up to him without trouble.

"Immediately rub your hand gently on the horse's nose, getting a little of the oil on it. You can then lead him anywhere. Give him a little of the castor on a piece of loaf-sugar, apple, or potato.

"Put eight drops of the oil of rhodium into a lady's thimble. Take the thimble between the thumb and middle finger of your right hand, with the fore-finger stopping the mouth of the thimble to prevent the oil from running out whilst you are opening the mouth of the horse.

"As soon as you have opened the horse's mouth, tip the thimble over upon his tongue, and he is your servant. He will follow you like a pet dog. [Very doubtful.—Author.]

"Ride fearless and promptly, with your knee pressed to the side of the horse, and your toes turned in and heels out; then you will always be on the alert for a shy or sheer from the horse, and he can never throw you.

"If you want to teach him to lie down, stand on his nigh or left side; have a couple of leather straps, about six feet long; string up his left leg with one of them around his neck; strap the other end of it over his shoulders; hold it in your hand, and when you are ready, tell him to lie down, at the same time gently, firmly and steadily pulling on the strap, touching him lightly with a switch. The horse will immediately lie down. Do this a few times, and you can make him lie down without the straps.

"He is now your pupil and friend. You can teach him anything, only be kind to him—be gentle. Love him and he will love you. Feed him before you do yourself. Shelter him well, groom him yourself, keep him clean, and at night always give him a good bed."

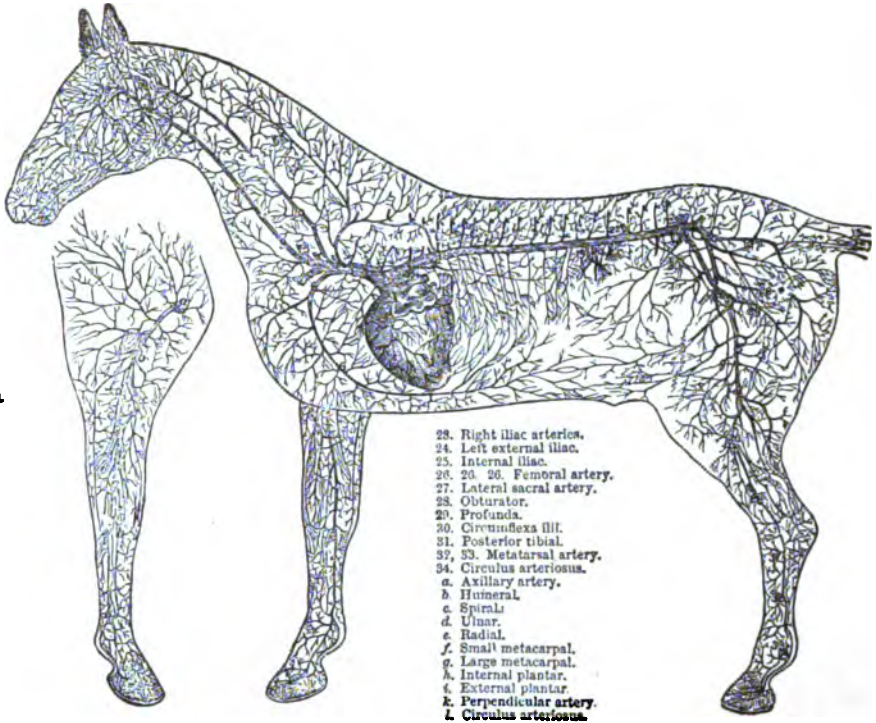
It will be perceived, by reference to the following item from "Bell's Life," that the secret for taming horses, by which Mr. Rarey has made himself so rich and famous, instead of being a divination of his own, was probably obtained by him through some accidental contact with an old volume which had long disappeared from observation and hardly held a place in public libraries:

A correspondent sends us the following: "In the Gentleman's Farriery, by Bartlett (sixth edition), published in 1762 (one hundred years ago), page 293, is the following: 'The method proposed by Dr. Bracken is to tie up one of the fore feet close, and to fasten a cord or small rope about the other fetlock, bringing the end of it over the horse's shoulders; then let him be hit or kicked with your foot behind that knee, at the same time pulling his nose down strongly to the manger. You will bring him upon his knees, where he should be held till he is tired, which cannot be long, but if he does not lie down soon, let him be thrust sideways against his quarters, to throw him over; by forcing him down several times in this way, you may teach him to lie down, at the same words you first used for that purpose. You will see that Mr. Rarey's system is exactly the same."

From the foregoing it will be seen that he obtained the knowledge, and naturally possessing the firmness, fearless energy and muscle sufficient to back the whole, he has become the horse tamer of the world.

Without all these qualifications no one need undertake the business. no matter how often he pays $5 for recipes or instructions.

A. Pulmonary artery.
B. Left auricle.
1. Left ventricle.
2. The trunk of the aorta.
3. Aorta anterior.
4. Aorta posterior.
5. Axillary artery.
6. 6. Internal pectoral.
7. Right vertebral artery.
8. Right carotid artery.
9. Left carotid.
10. 10. Left vertebral artery.
11. Occipital artery.
12. Bifurcation of the carotid.
13. Internal carotid.
14. Internal maxillary.
15. Sub-maxillary.
16. Ocular.
17. Facial.
18. Infra orbitar.
19. Cœliac.
20. Ant. mesenteric.
21. Renal.
22. Spermatic.

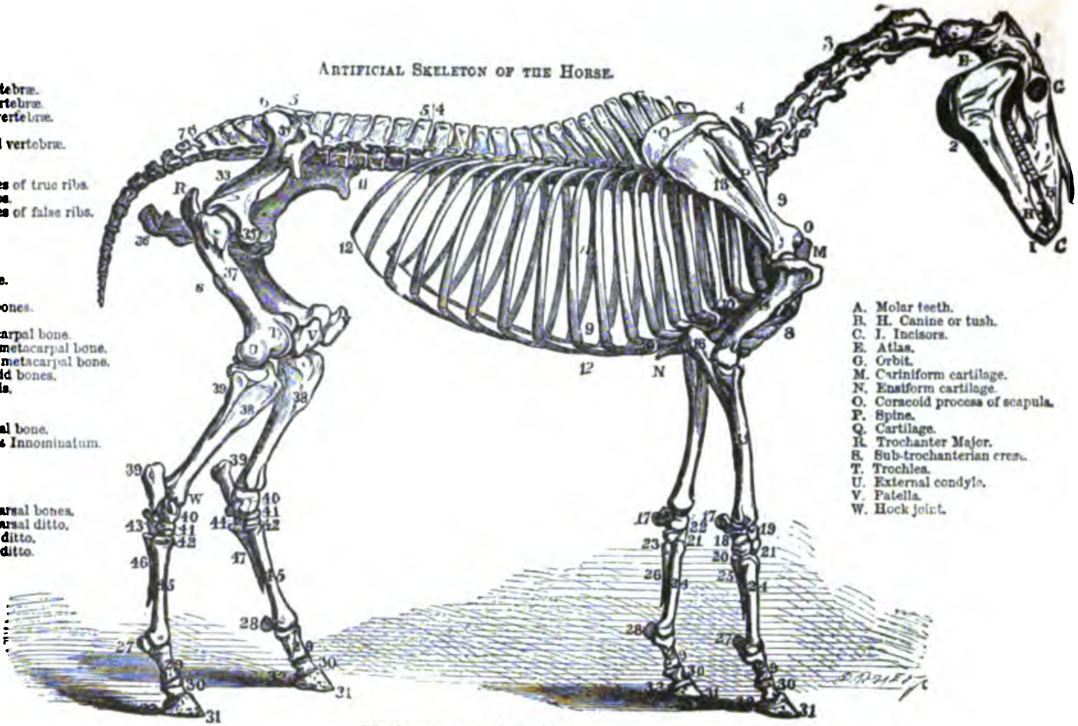


23. Right iliac arteries.
24. Left external iliac.
25. Internal iliac.
26. 26. 26. Femoral artery.
27. Lateral sacral artery.
28. Obturator.
29. Profunda.
30. Circumflexa ilii.
31. Posterior tibial.
32, 33. Metatarsal artery.
34. Circulus arteriosus.
a. Axillary artery.
b. Humeral.
c. Spiral.
d. Ulnar.
e. Radial.
f. Small metacarpal.
g. Large metacarpal.
h. Internal plantar.
i. External plantar.
k. Perpendicular artery.
l. Circulus arteriosus.

Circulatory System of the Horse.

ARTIFICIAL SKELETON OF THE HORSE.

1. Cranium.
2. Lower jaw.
3. Cervical vertebræ.
4. 4. Dorsal vertebræ.
5. 5. Lumbar vertebræ.
6. 6. Sacrum.
7. 7. Coccygeal vertebræ.
8. Sternum.
9. 9. True ribs.
10. 10. Cartilages of true ribs.
11. 11. False ribs.
12. 12. Cartilages of false ribs.
13. Scapula.
14. Humerus.
15. Radius.
16. Elbow.
17. Os pisiforme.
18, 19. } 20, 21. } Carpal bones. 22, 23. }
24. Large metacarpal bone.
25. Outer small metacarpal bone.
26. Inner small metacarpal bone.
27, 28. Sesamoid bones.
29. Os suffraginis.
30. Os coronæ.
31. Os pedis.
32. Wing of pedal bone.
33, 34, 35, 36. Os Innominatum.
37. Femur.
38. Tibia.
39. Os calcis.
40. Astragalus.
41, 42, 43, 44. Tarsal bones.
45. Large metatarsal ditto.
46. Outer small ditto.
47. Inner small ditto.



A. Molar teeth.
B. H. Canine or tush.
C. I. Incisors.
E. Atlas.
G. Orbit.
M. Cariniform cartilage.
N. Ensiform cartilage.
O. Coracoid process of scapula.
P. Spine.
Q. Cartilage.
R. Trochanter Major.
S. Sub-trochanterian crest.
T. Trochlea.
U. External condyle.
V. Patella.
W. Hock joint.

Skeleton of the Horse.

APPENDIX TO FARRIER'S DEPARTMENT.

BY THE PUBLISHER.

THE POINTS OF A GOOD HORSE.

A good horse possesses he following properties: A large, black, smooth, dry, round and hollow hoof; short and straight pasterns; straight and flat legs; round, lean and bony knees; a long, high-reared neck, great towards the breast, which should likewise be large and round; long, sharp and upright ears; a large and lean forehead; large, full and black eyes, with the brows well filled and shooting upwards; slender, lean, wide and open jaws; a long mouth; a large and lean head; a thin mane; withers sharp and pointed; the back short, even and double-chined; the sides and ribs deep, large and bearing out, and close shut at the knuckle bone; the belly long and capacious, but hid under the ribs; the flank full, but yet gaunt; the rump round, plain and broad, with a large space between the buttocks; the thighs long and large, with well-fashioned bones, and those well covered with flesh; the hams dry and straight; the truncheon small, long and well set; the tail long, not too thick, and falling to the ground; the yard (and stones, if a stallion) small; and he should be well risen before.

In the choice of a horse that is intended for the road, or, as it is commonly expressed, "for a hack," let the purchaser take care to get one of the best shape that he can for the money he intends laying out; in particular, let him see that his head is lean, his eyes large and prominent and his neck well raised; let his chine likewise rise pretty well, and take care that his joints are strong, his pasterns short, straight and not apt to bend when he is going; his hoofs should be likewise examined —if they are sound, tough and hollow there is but little danger but that he will stand the road well, as far as respects his feet. Lastly, his temper and disposition should be considered; and, though there is scarcely one thing in which people's opinions vary so much, it will generally be found that moderation in respect to spirit, etc., is much the best—a runaway and dull jade being equally uncomfortable. One that will do his work freely and without too much whipping or spurring, and at the same time manifesting no eagerness to go on when there is no occasion, is quite the best for this purpose, and should, if possible, always be made choice of.

HOW TO TRAIN A COLT.

Training colts should begin as soon as practicable. A day old is not too young, and they are never too old. The first object of the trainer is to impress them with a belief in the infallibility of his power over them; that, in the exercise of his power, he is their friend, ever ready to acknowledge and reward good deeds and only punishing for disobedience. To this end he should never place them, until satisfied of their being thoroughly trained in any place where he cannot, if necessary, compel obedience. When he understands how to hold them he must do so, and should not only do it but in a way to make them feel his power and dread disobedience. As soon as this is done, and they obey him, he should show them, by kind words and actions, the pleasure they give and his regard for them, and thus gain their confidence and attachment. My mode is very simple. It was taught me many years since by a trooper who had served under the First Napoleon. Take a cord about twenty feet long, made of the best material, and as small (at least for half its length) as it can be and have sufficient strength; the size of a common bed-cord will do very well. In the end of this small cord make a knot, and just far enough from the knot to pass around the colt's neck, make a "half-hitch" or tie. Pass the knotted end around the neck as near the head as you can, and through the half-hitch; close it up so that it fits snugly to the throat. This is nothing more than the common mode of fastening a rope halter around the neck, and fitting it closely to the head and throat. Take the other end of the rope and draw it through the neck-tie, putting it on the head side, and drawing it through until you form a loop about the length of the colt's jaws. This loop you put into his mouth, and tighten gently, so that he cannot get it out. Having thus fastened this rope, and with the long part firmly in your hand (it is well to have this part of the rope larger, as it holds easier, or it may be knotted, and to have also an old-fashioned lash whip of a good length), it is best to take a step forward, and, as you do so, say, "Come on, sir," or "Follow me," which, of course, the colt will not do, but will make an effort to escape. Give a little rope; then bracing with a firm hold, bring him to a sudden stop. A colt will seldom try this more than two or three times. As soon as he gives up and stands still, say again, "Come here, sir," and gently pull the rope; in nine cases out of ten, under a skillful trainer, he will come to you. Meet him with gentle words and actions; give a little sugar, or a few grains of feed, from the hand, then again step off, saying as before, "Come on, sir." If he does not start promptly, gently pull the rope, which is always kept in hand ready for use; he will soon obey and follow. After this, train him to go around you at the distance of the rope, to go directly from you, to come to you, to start and stop, and to go back at your bidding, all of which, with a little patience and judicious management, he will soon do. Colts should be trained to come at the word while holding and shaking over their heads the dreaded whip. Fearing the pull on the rope more than the whip, if they are bidden to come, and a little pull given to the rope, they will do so, and thus learn not to dread the whip except when disobedient. They may now be turned loose in a small inclosure, from the center of which they can be reached with the whip, and there trained to obey the word. This is not, however, very important, as for all ordinary purposes they may be equally well trained without it. Let them be bitted in the usual manner of bitting colts, but not too severely. In cases of disobedience, use the whip, but with great moderation, always accompanying it with reproving words, and in a stern voice, and as soon as they submit, meet them with kind words, pat them and give sugar.

Having taught them these things, commence with the saddle and harness. If the colt is of a timid or wild or vicious disposition, or there is the least fear of kicking, tie up one fore-foot; indeed, it is a safe plan always to do this. For this purpose the trainer should have a pliable strap of good leather, about an inch and a half wide, and three feet long, with a good strong buckle on one end, and a sufficient number of holes, not too far apart, in the other. Taking up the foot, pass the strap around the outside of the leg above and near the knee, and on the inside, cross it and buckle snugly around the uplifted part. The foot being strapped up, and the rope in hand, take the saddle and harness, let him see them and smell them to his heart's content; then gently put them on his back; take off; put on; repeat until he shows no fear: throw them on; drag them over his hips, and down his heels, through his legs; continue this until he regards them not. Let down his foot; repeat the putting on and taking off of the harness, using good and kind words, and you will get him so that should the harness break, it will not alarm him, and there will be no danger of a runaway, or of the wagon being kicked to pieces. Accustom the colts, when the foot is up, to chains and sticks being on their back and around their legs. If they have never been ridden, let some one get on and off until all fear of the same is gone. Having taught a colt these lessons, take a pair of lines and drive him until he answers readily to the rein; then put beside him a well-broken, quick-stepping horse, and put on the check reins, drive them until they answer and obey alike; then hitch to a light spring wagon, and drive off four or five miles, as you may without difficulty. Your colt is now well trained, and a safe driver in light double harness, and after a little use may be harnessed single without fear, and by not overloading, until trained to the draft, will work well.

How to Shoe a Horse.—There are very few blacksmiths that ever once think what a complicated piece of machinery the foot of a horse is, and by one careless blow they frequently stop the working of this machine. The majority of smiths, as soon as they pick up a horse's foot, go to work paring the heel, from the fact that it is the most convenient part of the foot, and thereby destroy the heel and braces of the foot, causing, in many instances, contracted heels. The heels of a horse should be well kept up and the toe down. By lowering the heels you throw the entire weighth of your horse upon the back tendon of the legs, and thereby produce lameness from overtaxing a very important set of tendons. By keeping up the heel you throw the weight upon the wall of the foot. In this position you prevent stumbling, clicking, etc. Next, the shoer commences to pare away the sole, thins it down until he can feel it spring with his thumb. Ask him why he does this, and he gives you no reason, except from custom. Next come the bars or braces of the foot; they are smoothed down. Next, in his ruinous course, come the frogs of the feet; they are subjected to the same cutting and smoothing process. All the cutting, paring, and smoothing of the soles, bars, or frogs is a decided injury to the horse, as well as to the owner. All the corns in the land are produced by this process of paring. The frogs have been placed in the foot by nature to expand the wall of the foot, and as soon as you commence to cut it, the oily substance commences to leak out, it dries up, becomes hard, losing its oily substance, makes the wall hard and dry, inducing it to crack. The nerves of the feet are very sensitive, and smiths should be very careful not to prick the foot, as it requires quite a time to relieve them. The foot is a very complicated piece of machinery, and if you keep a horse well shod and his foot in good condition, you can then generally manage the balance. The feet suffer from being kept too dry. Horses that stand on board floors should have their feet wet every day, or there should be a vat five inches deep, five feet long, and three wide, filled with water and clay, in which each horse can stand for one hour per week, unless his feet are feverish, then he should be kept in it an hour per day, or until the fever subsides. Another source of injury to horses' feet is the habit of patronizing cheap blacksmiths. All horseshoers should be well-skilled veterinary surgeons, or there should be a skillful surgeon attached to every shop. Another source of poor shoeing and injury is the loss of elasticity of the frog, refusing to perform its proper functions; the heel contracts, the foot rolls, and you have a sore horse for ten or twelve months, for it requires this long to relieve a horse's suffering from being badly shod.

Under the circumstances, the first thing that touches the road or the floor of the stall, should be the frog, and the wall of the foot should be kept cut so as not to prevent it from touching at every step; and no man that owns a horse should ever allow a blacksmith to cut the soles, bars, or frogs of his horse's feet. Nature has adapted the frogs to all description of roads, climates, and weather, without being pared. So many horses have been ruined by this process of paring, that there are now several establishments in this country that manufacture India rubber pads, thinking thereby to supply the wasted frog and the elasticity of the natural foot. The frog is insensible to pressure, and you may place the whole weight of your horse on the frog and he will suffer no inconvenience; besides, this is the only reliable way to cure contracted feet; by throwing the weight upon the frog, you force them up between the walls; it acts as a wedge, and soon relieves the contracted feet. Smiths should never have their shoes hot when fitting them, as the application of hot iron extracts the oily substance from the hoof. The amount of cruel punishment inflicted on horses by cross-grained blacksmiths, is another source of poor shoeing.

As soon as the horse does not stand, the smith gets angry and commences whipping and jerking the animal, which only adds terror to it, so that he soon refuses to go to the shop if he can avoid it; it is natural for horses to dislike to be shod, because the hammering shocks the nervous system, until they are accustomed to it. He should be taught to stand, and his feet well handled at home, before he is ever brought to the shop by the owner. The wall of the foot should never be rasped above the nail holes, and as little below the clenches as possible; all the rasping and filing but tends to thin and weaken the wall by cutting the fibers of the foot. The nails should be countersunk into the shoe, so that there will be no chance for the clenches to rise. No horse interferes with the heel or toe; it is always the side of the foot. The habit of turning the inside of the shoe under causes a number of horses to interfere, that would not if they were shod straight in the inside. Spread the heels as wide as possible; set the outside a little under; keep the toes full. For clicking horses, raise the heels high, cut the toes short. For speedy cuts, place your toe corks a quarter of an inch to the inside of the center of your shoe; keep the heels wide apart. For corns, put on a shoe with a prong, for the main rim, so as to cover the entire frog, pare the wall lower than the frog, so as his entire weight will be thrown on the frog. Have the inner cork not quite so sharp as the outer one, so that if he steps upon the other foot it will not cut it; make the shoes as light as possible consistent with good service, as they are ordinarily made just about one-third too heavy.

Horses in the United States.—The first horses brought into any part of the territory at present embraced in the United States, were landed in Florida, by Cabeca de Veca, in 1527, forty-two in number—all of which perished or were otherwise killed. The next importation was also brought to Florida, by De Soto, in 1539. In 1608 the French introduced the horse into Canada. In 1609 the English landed at Jamestown, in Virginia, having seven horses with them. In 1629 Francis Higginson imported horses and other domestic animals into the colony of Massachusetts Bay. In 1625 the Dutch Company imported horses into New York. In 1750 the French of Illinois were in possession of a considerable number of horses.

Speed of the Horse.—Table showing the distance a horse goes each second per various rates of speed, from 2:20 to 4 minutes, inclusive:

2:20	gait	37 5-8	feet per second.
2:25	"	36 1-2	" "
2:30	"	35 1-5	" "
2:35	"	34 1-16	" "
2:40	"	33	" "
2:45	"	32	" "
2:50	"	31 1-17	" "
2:55	"	30 1-6	" "
3:00	"	29 1-3	" "
3:10	"	27 3-4	" "
3:20	"	26 2-5	" "

3:30	"	25 1-7	"	"
3:40	"	24	"	"
3:50	"	23	"	"
4:00	"	22	"	"

Origin of Mules in the United States.—Upon Washington's first retirement, in 1783, he became convinced of the defective nature of the working animals employed in the agriculture of the Southern States, and set about remedying the evil by the introduction of mules instead of horses, the mule being found to live longer, be less liable to disease, require less food, and in every respect to be more serviceable and economical than the horse, in the agricultural labor of the Southern States. Up to the year 1773, scarcely any mules were to be found in the American confederation; a few had been imported from the West Indies, but they were of diminutive size and of little value. So soon as the views on this subject of the illustrous farmer of Mount Vernon were thrown abroad, he received a present from the king of Spain of a jack and two jennies, selected from the royal stud at Madrid. The jack, called the "Royal Gift," was sixteen hands, of a gray color, heavily made, of a sluggish disposition.

At the same time the Marquis de la Fayette sent out a jack and jennies from the island of Malta. The jack, called the "Knight of Malta," was a superb animal, black color, with the form of a stag and the ferocity of a tiger. Washington availed himself of the best qualities of the two jacks by crossing the breeds, and hence obtained a favorite jack, called "Compound," which animal united the size and strength of the "Gift" with the courage and activity of the "Knight." The jack arrived at Mount Vernon, if we mistake not, early in 1788. The general bred some very superior mules from his coach-mares, sending them from Philadelphia for the purpose. In a few years the estate of Mount Vernon became stocked with mules of superior order, rising to the height of sixteen hands, and of great power and usefulness, one wagon-team of four mules selling at the sale of the general's effect for eight hundred dollars.

In no portion of Washington's various labors and improvements in agriculture was he so particularly entitled to be hailed as a public benefactor as in the introduction of mules in farming labor, those animals being at this time almost exclusively used for farming purposes in the Southern States.

THE STABLE DOCTOR.

For Heaves.—No. 1. One teaspoonful of lobelia, given in the feed, once a day, for a week, and then once or twice a week, will stop them for a time.

No. 2. Balsam copaiba, 1 ounce; spirits of turpentine, 2 ounces; balsam fir, 1 ounce; cider vinegar, 16 ounces; mix, and give a tablespoonful once a day

No. 3. Saltpeter, 1 ounce; indigo, ½-ounce; rain water, 4 pints; mix, and give a pint twice a day.

No. 4. Licorice, elecampane, wild turnip, fenugreek, skunk-cabbage, lobelia, cayenne, and ginger, equal parts of each; mix, and give a tablespoonful once or twice a day; if the horse refuses to eat it in feed make it into a ball and give.

Contracted Hoof or Sore Feet.—No. 1. Take equal parts of soft fat, yellow wax, linseed oil, Venice turpentine, and Norway tar; first melt the wax, then add the others, mixing thoroughly. Apply to the edge of the hair once a day.

No. 2. Benzine, 1 ounce; salts of nitre, 1 ounce; alcohol, 3 ounces; aqua ammonia, 2 ounces; Venice turpentine, 8 ounces. Mix; apply to the edge of the hair, and all over the hoof, once a day, for ten days, then twice a week for a short time.

No. 3. Resin, 4 ounces; lard, 3 ounces; heat them over a slow fire, then take off and add powdered verdigris, 1 ounce, and stir well to prevent its running over; when partly cool add 2 ounces spirits turpentine. Apply to the hoof about once inch down from the hair.

Horse Liniments.—No. 1. Oil spike, oil origanum, oil hemlock, oil wormwood, aqua ammonia, camphor gum, of each 2 ounces; olive oil, 4 ounces; alcohol, one quart. Mix. This is an excellent liniment for man or beast.

No. 2. Oil origanum, oil amber, sweet oil, of each 1 ounce; oil spike, aqua ammonia, and oil of turpentine, of each 2 ounces. Mix.

No. 3. Linseed oil, 8 ounces; turpentne, 8 ounces; oil origanum, 4 ounces. Mix well. This is excellent for sprains and bruises, and is good as a general liniment.

No. 4. Oil spike, 1 ounce; oil origanum, 2 ounces; alcohol, 16 ounces. Good for lameness resulting from almost any cause.

No. 5. Take equal parts of alcohol, chloroform, aqua ammonia, Jamaica rum and water, and mix.

For Scratches and Grease Heel.—No. 1. Balsam fir, 4 ounces; lard, 4 ounces. Stir, with a gentle heat, until thoroughly mixed. Wash the sores well with castile soap and apply.

No. 2. Sugar of lead, 2 ounces; borax, 1 ounce; sweet oil, 6 ounces; mix, and apply twice daily, after washing with castile soap, and drying.

No. 3. Tincture of myrrh, 2 ounces; glycerine, 4 ounces; tincture of arnica, 2 ounces. Mix thoroughly and apply two or three times a day, after cleansing, as above, with castile soap.

No. 4. Take ½-ounce of powdered verdigris and 1 pint of rum, or proof spirits. Mix, and apply once or twice a day. This works nicely for grease heel or mud fever.

No. 5. Take of oxide of zinc, 1 drachm; lard, 1 ounce; powdered gum benzoin, 10 grains; comphorated spirits, 1 drachm. Mix thoroughly and rub on twice a week. Do not wash after the first application.

Cuts, Wounds and Sores.—Take of lard, 4 ounces; beeswax, 4 ounces; resin, 2 ounces; carbolic acid, ¼-ounce. Mix the first three and melt, then add the carbolic acid, stirring until cool. This is excellent for man, as well as beast.

Wound Balsam.—For Horses or Human Flesh.—Gum benzoin, in powder, 6 ounces; balsam of tolu, in powder, 3 ounces; gum storax, 2 ounces; frankincense, in powder, 2 ounces; gum myrrh in powder, 2 ounces; Socotorine aloes, in powder, 3 ounces; alcohol, 1 gallon. Mix them all together and put them in a digester, and give them a gentle heat for three or four days, then strain.

Sweeney.—Spanish flies, camphor gum, and cayenne, of each 1 ounce; alcohol, 10 ounces; spirits turpentine, 6 ounces; oil origanum, 2 ounces. Mix.

Ring-Bone and Spavins.—To Cure.—Egyptiacum and wine vinegar, of each 2 ounces; water of pure ammonia, spirits of turpentine, and oil origanum, of each 1 ounce; euphorbium and cantharides, of each ½-ounce; glass made fine and sifted through gauze, 1 drachm; put them in a bottle, and when used let them be well shaken. This is to be rubbed upon the bone enlargement, with the hand or spatula, for half an hour each morning, for six or seven mornings in succession. Let the horse be so tied that he cannot get his mouth to the place for 3 or 4 hours, otherwise he will blister his mouth and blemish the part. Then let him run until the scab comes off of itself without scraping, which injures the roots of the hair. Then repeat as before, and follow up for 3 or 4 times blistering, and all bone enlargements will be reabsorbed, if not for more than a year or two's standing.

It is also good for callous sinews, and strains of long standing, spavins, big head, etc., but if there are ring-bones of so long standing that this does not cause their cure, you will proceed as follows:

Bone-Spavins—French Paste $300 Recipe.—Corrosive sublimate, quicksilver, and iodine, of each 1 ounce; with lard sufficient to form a paste.

Directions.—Rub the quicksilver and iodine together, then adding the sublimate, and finally the lard, rubbing thoroughly.

Shave off the hair the size of the bone enlargement; then grease all around it, but not where the hair is shaved off; this prevents the action of the medicine, only upon the spavin; now rub in as much of the paste as will lie on a three-cent piece only, each morning for four mornings only; in from seven to eight days the whole spavin will come out; then wash out the wounds with suds, soaking well, for an hour or two, which removes the poisonous effects of the medicine and facilitates the healing, which will be done by any of the healing salves; but I would prefer the green ointment to any other in this case.

Cordial Balls.—No. 1. Anise, powdered, ½-ounce; ginger, 1 drachm; gentian, 1 drachm; fenugreek, 2 drachms; mix.

No. 2. Caraway and ginger, each 2 drachms; anise, gentian and fenugreek, each 1 ounce; mix.

No. 3. Camphor, 1 drachm; anise, 3 drachms; tincture of opium, 1 ounce; powdered extract of licorice, 3 drachms; flaxseed meal, 1 ounce; mix.

Astringent and Cordial.—No. 1. Opium, 12 grains; camphor, ½ drachm; catechu, 1 drachm; mix.

No. 2. Opium, 10 grains; camphor, 1 drachm; ginger, 2 drachms; castile soap, 2 drachms; anise, 3 drachms; licorice, 2 drachms; mix.

Alterative and Laxative Balls.—No. 1. Linseed meal, 1 ounce; aloes, ½-ounce; castile coap, ½-ounce; mix.

No. 2. Ginger, 1 drachm; castile soap, 2 drachms; Barbadoes aloes, pulverized, 4 drachms; flaxseed meal, 1 ounce.

Tonic Ball.—Ginger, 2 drachms; gentian, 1 drachm; Peruvian bark, ½-ounce; fenugreek, ¼-ounce; mix, and form a ball.

Diuretics.—Take of balsam copaiba, 2 ounces; sweet spirits of nitre, 3 ounces; spirits of turpentine, 2 ounces; oil of juniper, 2 ounces; tincture of camphor, 2 ounces; mix; shake the bottle before pouring the medicine; dose for adult horse, two tablespoonfuls, in a pint of milk, repeated every four to six hours, if necessary. This is a reliable preparation for kidney difficulties.

Cough Mixtures.—No. 1. Oil of tar, given as directed for treatment of heaves, is one of the best remedies for nearly all coughs.

No. 2. Take of alcohol, ½-pint; balsam of fir, 2 ounces; mix well, and add all the tar it will cut. Shake well before using. Dose from one to two teaspoonfuls two or three times a day.

Nasal Gleet.—No. 1. Copperas, 2 ounces; pulverized gentian, 3 ounces; elecampane, 1 ounce; linseed meal, 3 ounces; mix, and give from ½ to 1 tablespoonful, twice a day.

No. 2. Aloes, 6 ounces; pulverized nux vomica, 3 drachms; flaxseed meal, 4 ounces; make into eight powders and give one or two each day.

Cracked Heels.—Tar, 8 ounces; beeswax, 1 ounce; resin, 1 ounce; alum, 1 ounce; tallow, 1 ounce; sulphate of iron, 1 ounce; carbolic acid, 1 drachm; mix, and boil over a slow fire. Skim off the filth, and add 2 ounces of the scrapings of sweet elder.

Thrush.—No. 1. Wash the feet well with castile soap and water, and sprinkle with a small quantity of pulverized blue vitriol in the cleft and then fill up all the cavities with cotton and press it in so as to keep out all dirt, and repeat as often as necessary until the cure is complete.

No. 2. Blue vitriol and copperas, of each 1 ounce; burnt alum, 2 ounces; white vitriol, ¼-ounce; mix.

Water Farcy.—No. 1. Saltpeter, 2 ounces; copperas, 2 ounces; ginger, 1 ounce; fenugreek, 2 ounces; anise, ½-ounce; gentian, 1 ounce; mix and divide into eight powders; give two or three each day.

No. 2. Gentian, 1 ounce; ginger, ½-ounce; anise, 1 ounce; elecampane, 2 ounces; blue vitriol, 1 ounce; flaxseed meal, 2 ounces; saltpeter, 2 ounces; mix, and divide into eight powders. Moderate daily exercise and rubbing the limbs are useful.

Healing Preparations.—Pulverized camphor, 1 drachm; prepared chalk, 6 drachms; burnt alum, 4 drachms; mix. Sprinkle over the sore.

Tincture of opium, 1 ounce; tannin, 1 drachm; mix and shake well before using. Excellent for galls of collar, saddle, or, in fact, for any purpose requiring a healing astringent.

For Unhealthy Ulcers.—Nitric acid, 1 ounce; blue vitriol, 2 ounces; soft water, 15 ounces.

Healing Mixtures.—Cosmoline, 5 ounces; carbolic acid, 1 drachm; mix. This is one of the very best of mixtures for any sore, especially for such cases as are inclined not to heal readily.

To Cure Mange.—Oil tar, 1 ounce; lac sulphur, 1½ ounces; whale oil, 2 ounces; mix. Rub a little on the skin wherever the disease appears, and continue, daily, for a week, and then wash off with castile soap and warm water.

Sore Lips.—The lips become sore frequently at the angles of the mouth, from bruising with the bit. They can be cured by applying the following mixture:

Tincture of myrrh, 2 ounces; tincture of aloes, 1 ounce, and tincture of opium, ½-ounce; mix, and apply three or four times a day.

For Sore Mouth and Lips.—Borax, 1 ounce; tannin, ¼-ounce; and glycerine, 8 ounces; mix, and apply, two or three times a day, with a swab.

For Sprains, Etc.—Hog's lard and spirits of turpentine; mix, and place in the hot sunshine for four or five days. Apply four or five times a week.

Eyewater.—White vitriol and saltpeter, of each 1 scruple; pure soft water, 8 ounces; mix. This should be applied to the inflamed lids three or four times a day, and if the inflammation does not lessen in one or two days it may be injected directly into the eye.

The writer has used this for his own eyes, reduced half with water and dropped directly into the eye, which would cause the eye to smart considerably for about five minutes, when he would bathe the eye with cold water for a few minutes, and, by repeating this three or four times a day, it has given the very best of satisfaction.

It does nicely many times to just close the eye and bathe the outside freely.

For Colic.—Take of gum myrrh, 1 ounce; gum camphor, 1 ounce; powdered gum guaiac, 1 ounce; cayenne, 1 ounce; sassafras bark, powdered, 1 ounce; spirits turpentine, 1 ounce; oil origanum, ¼-ounce; oil hemlock, ½-ounce; pulverized opium, ½-ounce; strongest alcohol, 2 quarts; mix all together and shake often for eight or ten days and filter or strain through flannel. Dose from 1 to 3 tablespoonfuls, according to the severity of the case; give in 1 pint of milk.

We never have known the above remedy to fail of giving relief when given for colic, in horses. In many cases where it has been used it has given immediate relief, even though various other remedies had failed of giving any relief.

It makes one of the very best pain-killers for family use, and we advise all to keep it on hand.

For Removing Enlargements, Etc.—Oil spike, 1 ounce; camphor, 1 ounce; oil origanum, 2 ounces; oil amber, 1 ounce; spirits turpentine, 2 ounces. Rub on the mixture thoroughly, two or three times a week.

Quarter Crack.—The best way to cure quarter crack is to open the heel on that side between bar and frog, cutting down pretty well (not sufficient to cause bleeding), until the quarter will give freely; then put on a shoe that will expand the heel. It is also necessary in this case that the inner heel should be open or spread, as the hoof is simply too small for the foot; if this is properly done the point is directly reached. Some recommend, in addition to this, burning with a hot iron a crease across at the upper edge of hoof. If this is done properly the hoof will not split any more. The hoof may now be more rapidly grown if desired. Opening the foot and the shoe is the point of success.

Quittor.—Corrosive sublimate, ¼-ounce; muriatic acid, 20 drops; soft water, 2 ounces; mix the last two and shake well, then add the first.

Inject a little with a glass syringe one or two times, being careful to inject to the bottom. Warm poultices, used for several days, generally work well.

Hidebound.—To recruit a hidebound horse, give nitrate potassa (or saltpeter), 4 ounces; crude antimony, 1 ounce; sulphur, 3 ounces. Nitrate of potassa and antimony should be finely pulverized, then add the sulphur, and mix the whole well together. Dose, a tablespoonful of this mixture in a bran mash daily.

To Grow Hair.—Mix sweet oil, 1 pint; sulphur, 3 ounces. Shake well, and rub well into the dock twice a week.

For Worms.—Calomel, 1 drachm; tartar emetic, ½ drachm; linseed meal, 1 ounce; fenugreek, 1 ounce. Mix and give in feed at night, and repeat the dose for two or three times, and follow with 1½ pints of raw linseed oil, about 6 hours after the last powder has been given.

Grease Heal.—Chloride of zinc, 1½ drachms; water, 10 ounces; glycerine, 8 ounces; mix. If there is much discharge apply a poultice for several hours, followed by application of the above, after cleansing well with soft water and castile soap. The following powders should be given at the same time in the feed, every night for a week or two: Bicarbonate of soda, 1 ounce; arsenic, 1 drachm; iodide of iron, ½-ounce; fenugreek, 2 ounces; ginger, 2 ounces; elecampane, 1 ounce; mix thoroughly and divide into 12 powders.

Hops, 2 ounces; carbolic acid, 30 drops; boiling water, 2 gallons. Mix the hops and carbolic acid with the boiling water and compel the animal to inhale the steam for 15 or 20 minutes at a time, and repeat three times a day. Apply a strong mustard paste to the throat, and place a warm poultice over the paste. Feed warm mashes and boiled vegetables; keep the stable comfortably warm and the air pure. Give the following powders once a day; powdered Peruvian bark, 2 ounces; powdered gentian, 1 ounce; powdered copperas, 1 ounce; mix, and divide into 8 powders.

For Ringworm.—Apply mercurial ointment three or four times a week.

For Brittle and Contracted Hoofs.—Take of castor oil, Barbadoes tar and soft soap, equal parts of each; melt all together and stir while cooling, and apply a little to the hoof three or four times a week.

Arabian Condition Powders.—Ground ginger, 1 lb.; sulphuret of antimony, 1 lb.; powdered sulphur, 1 lb.; saltpeter, 1 lb. Mix all together, and administer in a mash, in such quantities as may be required. The best condition powder in existence.

Liniments for Horses.—No. 1. Olive oil, 2 ounces; aqua ammonia, 1 ounce; mix, and add 2 ounces oil origanum, 2 ounces of spirits of turpentine, ½-ounce oil of wormwood, strongest alcohol, 1 pint. This liniment is excellent for any lameness; also good for spavins, ringbones, curbs, etc., if used when they make their first appearance.

No. 2. Alcohol, 1 tablespoonful; extract of lead, 1 tablespoonful ammonia, 2 ounces; tincture of cayenne pepper, 4 ounces; beef's gall, 1 gill; camphor gum, 1 ounce; alcohol, 1 pint; mix. Used for the same purpose as No. 1.

No. 3. Best vinegar, 1 quart; saltpeter, pulverized, 4 ounces; wormwood, 4 ounces; mix, and steep in a dish well covered; strain and press the herbs. Valuable for bruises, swellings and sprains.

Saddle and Harness Galls, Bruises, Etc.—No. 1. Tincture of opium, 2 ounces; tannin, 2 drachms; mix, and apply twice a day.

No. 2. Take white lead and linseed oil, and mix as for paint, and apply two or three times a day. This is good for scratches, or any wounds on a horse.

Eyewater for Horses.—No. 1. Sugar of lead, 1 drachm; tincture of opium, 2 drachms; soft water, 1 pint; mix, and wash the eye two or three times a day. Or,

No. 2. Alcohol, 1 tablespoonful; extract of lead, 1 teaspoonful; rainwater ½-pint.

Founder.—No. 1. Vinegar, 3 pints; cayenne pepper, ½ drachm; tincture of aconite root, 15 drops; mix, and boil down to 1 quart; when cool, give it as a drench; blanket the horse well; after the horse has perspired for an hour or more, give 1 quart of raw linseed oil; this treatment will be found good for horses foundered by eating too much grain.

No. 2. Some recommend for horses foundered on grain, to bleed about 1 gallon, then to drench the horse with 1 quart of raw linseed oil; after this to rub the fore legs well, and for a long time, with very warm water, having a little tincture of opium mixed with it. As the horse will not recover from loss of blood for a long time it is usually better to adopt the treatment given in No. 1.

Anodyne Drenches.—No. 1 Tincture of opium, 1 ounce; starch gruel, 1 quart; mix.

No. 2. Sweet spirits of nitre, 1 ounce; tincture of opium, 1 ounce; essence of peppermint, ¼-ounce; water, 1 pint; mix.

No. 3. Tincture of opium, 1 ounce; spirits of camphor ½-ounce; anise, ½-ounce; sulphuric ether, 1 ounce; water, 1 pint; mix.

Diabetes.—Sugar of lead, 10 grains; alum, 30 grains; catechu, 1 drachm; tincture of opium, ½-ounce; water, 1 pint; mix.

Farcy and Glanders.—No. 1. Iodide of potassium, 1¼ drachms; copperas, ½-drachm; ginger, 1 drachm; gentian, 2 drachms; powdered gum arabic and syrup to form a ball.

No. 2. Calomel, ½-drachm; turpentine, ½-ounce; blue vitdrachms; powdered gum arabic and syrup to form a ball.

No. 3. ½-ounce sulphite of soda, 5 grains Spanish flies, powdered; mix, and give at night in cut feed for several weeks. Give at same time, every morning and noon, 3 drachms powdered gentian, 2 drachms powdered blue vitriol. Give the medicines for a long time. Feed well. This is the best treatment that can be given for this disease.

Fever Balls.—No. 1. Saltpeter, 2½ drachms; tartar emetic, ½-drachm; flaxseed meal, 1 ounce; camphor, ½-drachm; ginger, 2 drachms; mix, and form into a ball; repeat three or four times a day if necessary.

No. 2. Tincture of aconite, 10 drops; tartar emetic, ¼-drachm; saltpeter, 1 drachm; ginger, 2 drachms; linseed meal, 1 ounce; mix, and form into a ball; repeat three or four times a day if necessary.

Diuretic and Tonic Balls.—Copperas, 1½ drachms; ginger, 1 drachm; gentian, 1 drachm; saltpeter, 3 drachms; resin, ½-ounce; flaxseed meal, 1 ounce; mix, and form into a ball.

Diuretic Balls.—No. 1. Saltpeter, 3 drachms; resin, 4 drachms; castile soap, 2 drachms; fenugreek, 3 drachms; flaxseed meals, 1 ounce; mix, and form into a ball.

No. 2. Oil of juniper, ½-drachm; resin and saltpeter, each, 2 drachms; camphor, ½-drachm; castile soap, 1 ounce; flaxseed meal, 1 ounce; mix, and form into a ball.

The Epizootic.—The early symptoms of the disease are a light, hacking cough, with a general dulness, and an indisposition to move; cold legs, with a watery discharge from the nostrils. At first, the nasal membrane is pale, but as the disease advances, becomes highly colored, and the mucous discharge changes to a greenish yellow color, and the pulse becomes more rapid. As soon as the symptoms appear, the animal should be kept warm in the stable by blanketing. The following prescriptions are recommended:

No. 1. Linseed oil, 1½ ounces; turpentine, 1½ ounces; liquor ammonia fotr., 1 ounce. Mix all together, and apply to the throat.

No. 2. Nitrate potash, 1½ ounces; tartarized antimony, 1½ ounces; digitalis, 1½ ounces. Pulverize all together, and give one night and morning. If not very bad, the digitalis may be omitted.

The disease consists of an inflammation of the mucous membrane lining of the throat, which gradually extends from the epiglottis downwards till it reaches the lungs, when it assumes a decidedly dangerous character. The following will arrest the disease at once, if taken in time:

Boil a handful of smart-weed till all the strength is obtained, and pour the liquid boiling hot over the usual mess of oats, and, when all is cool, feed them to the horse. Repeat till all symptoms disappear. Cure certain. Ground ginger mixed with the oats has also proved effectual.

DOMESTIC ANIMALS.

The principal domestic animals reared for economical purposes in the United States are horned, or neat cattle, the horse, the mule, sheep, and swine. A few asses are bred, but for no other object than to keep up the supply of jacks, for propagating mules. We have, also, goats, rabbits, and the house domestics.

The purpose for which animals are required is first of consequence to be determined, before selecting as may be necessary either for breeding or use. Throughout the northeastern States, cows for the dairy, oxen for the yoke, and beef for the butcher are wanted. In much of the West and South beef alone is the principal object, while the products of the dairy, until recently, have been considered of less importance as commodity for distant markets, and the work of the oxen is seldom relied on except for occasional drudgery. Sheep may be wanted almost exclusively for the fleece, or for the fleece and heavy mutton; or, in the neighborhood of markets, for large, early lambs. The pastures and winter food, climate and other conditions present additional circumstances, which should be well considered before determining on the particular breed, either of cattle or sheep; that will best promote the interests of the farmer. The kind of work for which the horse may be wanted, whether as a roadster, for the saddle, as a heavy team horse, or the horse of all work, must be first decided, before selecting the form or character of the animal. The range of pig excellence is more circumscribed, as it is only necessary to breed such as will yield the greatest amount of valuable carcass, within the shortest time, and with the least expense.

Principles of Breeding.—All breeding is founded on the principle that like begets like. This is, however, liable to some exceptions, and is much more generally true when breeding down than when breeding up. If two animals which can never be exactly similar in all respects are requisite to the perpetuation of the species, it necessarily results that the progeny must differ in a more or less degree from each parent. With wild animals and such of the domestic as are allowed to propagate without the interference of art, and whose habits, treatment, and food are nearly similar to their natural condition, the change through successful generations is scarcely perceptible. We may lay down as the rules for this art:

1. That the animals selected for breed should unite in themselves all the good qualities we wish to perpetuate in the offspring.
2. These qualities, technically called points, should be inbred in the animals as far as practicable, by a long line of descent from parents similarly constituted.
3. All the conditions of soil, situation, climate, treatment, and food, should be favorable to the object sought.
4. Perfect health, and sound constitution in the breeding animals, and freedom from blemish, either inherent or chronic.
5. As a general rule, the female should be relatively larger

than the male. This gives ample room for the perfect development of the foetus, easy parturition, and a large supply of milk for the offspring, at a period in its existence when food has a greater influence in perfecting character and form than at any subsequent time.

6. Exceptions to this rule may be made, when greater size is required than can be obtained from the female, and especially when more vigor and hardiness of constitution are desirable. For this purpose, strong masculine development in the sire is proper, and, if otherwise unattainable, something of coarseness may be admitted, as this may be afterwards corrected; but nothing will atone for want of constitution and strength.

7. Pairing should be with a strict reference to correcting the imperfections of one animal by a corresponding excellence in the other.

8. Breeding in-and-in, or propagating from animals nearly allied, may be tolerated under certain circumstances. When the animal possesses much stamina and peculiar merit, which it is desired to perpetuate in the breed, it may be done either in the ascending or descending line, as in breeding the son to the parent, or the parent to his own progeny. This has been practiced with decided advantage, and in some cases has even been continued successively as low as the sixth generation.

9. Yet, with inexperienced breeders, it is usually better to avoid close relationship, by the selection of equally meritorious stock-getters of the same breed from other sources, unless the breeder be a perfect master of the art of close breeding. It requires the soundest judgment and long experience to long follow in-and-in breeding with entire success.

10. Wholesale, nutritious food, at all times sufficient to keep the animals steadily advancing, should be provided, but they should never be allowed to get fat. Of the two evils, starving is preferable to surfeit. Careful treatment and the absence of disease must be always fully considered.

11. Animals should never be allowed to breed either too early or too late in life. These periods cannot be arbitrarily laid down, but must depend on their time of maturity, the longevity of the breed, and the stamina of the individual.

12. No violent cross or mixing of distinct breeds should ever be admitted for the purpose of perpetuation, as of cattle of diverse sizes, horses of unlike characters; the merino and long-wools, or even the long or short and the middle-wooled sheep. For carcass and constitution, the last-named crosses are unexceptionable; and it is a practice common in this country, and well enough, where the whole produce is early destined for the shambles. But when the progeny are designed for breeders, the practice tends to a total uncertainty in fixed character and quality.

CATTLE.

Native Cattle.—This is a favorite term with Americans, and comprehends everything in the country excepting such as are of a pure and distinct breed. It embraces some of the best, some of the worst, and some of almost every variety, shape, color, and character of the bovine race. The designation has no further meaning than that they are indigenous to the soil, and do not belong to any well-defined or distinct variety.

Devons.—This beautiful race is of medium size, red in color, symmetrical in shape, and of great beauty in appearance, combining almost every good quality demanded in the bovine race. They have been kept and cultivated for many centuries in the southwestern countries of England—more in Devonshire than elsewhere—and much improved in form and early ripeness within the last century. They are favorites as working oxen. They are fine in the bone, round and long in the carcass, wide in the hips, short in the leg, straight and broad in the back, fine in the head and neck, deep in the chest and brisket, prominent in the eye, high and spreading in the horn, and yellow in the muzzle—taken altogether, of most graceful and blood-like appearance. They are naturally excellent milkers, giving a medium quantity, and of remarkably good quality, yielding the richest butter.

Herefords.—This is another valuable breed, of great antiquity in some of the western counties of England, bordering on Wales, of which Herefordshire is the chief, and from which the cattle take their name. Their size is large, their color red, with white or mottled faces, sometimes white backs and bellies and occasionally a deep roan of red and white intermixed on their bodies. In general shape they are much like the Devons, a fourth larger in size, somewhat coarser in the bone, and hardly so refined and graceful in the outline. Their horns are high and spreading. So far as tried in America, as a beef animal they mature early, as at three to four years they are well grown for fattening. As a working ox no beast can be better, being large, strong, readily matched, docile, and of great strength—taken altogether the best of working cattle.

Ayrshires.—This is perhaps the most popular breed of milk cows now in Scotland, taking their names from the county of Ayr, where they were first originated and bred, and obtained their celebrity. In size they are medium, compared with our native cattle; in color, dark red, or brown and white occasionally inclining to roan, sometimes flecked, or spotted, the red and white variously intermingled. Their shape is usually good, being squarely built, short in the leg, broader behind than before, as all milkers should be, straight in the back, wide across the hips, finely shaped udder with the milk marks well developed, and bounteous milkers. Their heads are small, the horns short and well set, the eye bright, the nose either dark or yellow, but the dark usually prevailing—although a satisfactory dairy cow.

Galloway, Angus, or Aberdeens of Scotland, have been recently introduced into the United States. They are a beef animal chiefly, the cows having little reputation in their native land as milkers. They are of medium size only, mostly black in color, although occasionally red, dun, or black and red brindled, compact in shape, and hornless. They are hardy, easy keepers, early matured, and of excellent quality for flesh. They thrive well on rough soils and in a severe climate, and may, in good grazing localities, achieve decided success. Some of their partial breeders and advocates contend that they are good milkers, but such is not their usual reputation. For common labor uses they have proved good working oxen.

Shorthorns.—This is the most universally popular foreign breed in our country. Their large size, full development and excellent general qualities have made them universal favorites on all good soils where abundant grasses prevail. They have great size, great length, breadth and depth of carcass, small in bone, fine in symmetry, attractive in color, which is red and white only, or of those colors in patches or agreeably intermingling through all degrees and shades of roan. They are fine in the head, clean in the neck, with yellow noses, bright eyes, small, short, curved horns, and of elegant, imposing contour. They mature early, at three to four years old, and make a quick and profitable return of their food in either milk or beef, for either of which purposes they may be profitably bred and used, as selections are made, or these qualities are required. As working oxen exclusively we do not recommend them, as they are heavier and slower in movement than some of the other breeds, or even our native cattle.

Jerseys and Guernseys.—These two varieties in their origin are a cognate breed, each taking its name from one of the Channel Islands of Great Britain, near the coast of Normandy, in France, from which country their ancestry, centuries ago, crossed over to those islands. Jersey, being the larger territory, contains many more cattle than the other, and from it much larger importations to the United States have been drawn. The Jersey are small in size, unique in form and color, with distinct characteristics, all tending to dairy qualities. Lean and angular in anatomy, they carry little flesh compared with other breeds, but their milk, although less in quantity, is richer in cream and color of butter than cows of other breeds. In such reputation they have become favorites with many who are select in their choice of butter, which sells at an increased price over that of the common dairies. The average weight of the cows may run to eight or nine hundred pounds, and their yield of milk from twelve to eighteen more pounds per day.

The Guernseys are full 20 per cent larger in size than the Jerseys, of nearly the same anatomical shape and similarity of color, both being chiefly fawn, or light yellow, mingled more or less with white, squirrel gray, or smoky brown, and occasionally splashed with streaks of brown. The Guernseys in their greater weight usually yield more milk and butter than the others and carry more flesh. Their lacteal qualities are their great merit, and on these their popularity is sustained.

Holsteins.—This valuable dairy breed has lately been introduced from Holland into several of our different states. They are of large size, black and white in color, and in shape somewhat resemble the Shorthorns. They have evidently been bred in their own original blood for a long time, perhaps for centuries, in their native homes, the dairy districts of North Holland, and been carefully improved with a view to develop their lacteal qualities. Their trial as dairy cows has been remarkably successful, showing the prominent points of great yielders of milk for consumable purposes. They are numerously propagated for the dairy. They are rather coarse in bone and symmetry, large feeders, but compensating therefor in the supply of milk they give. Their lacteal properties are well developed, showing their adaptability for dairy purposes.

Raising Calves by Hand.—At the noted agricultural college of Hohenheim, Germany, probably the best conducted institution of the kind in the world, they raise calves entirely by hand, and the daily allowance of food is as follows:

	Milk. lbs.	Oatmeal. lbs.	Fine Hay. lbs.
1st week	12	0	0
2d week	16	0	0
3d week	20	0	0
4th week	22	0	0
5th, 6th and 7th weeks	22	½	½
8th week	21	½	½
9th week	20	1	1
10th week	16	2	3
11th week	12	2	6
12th week	8	2	10
13th week	4	3	10

In the ninth week the milk is first mixed with water, and a little fine oatmeal is stirred in. The meal is afterward mixed with the dry fodder.

After three months the milk is withheld, and then the young animals receive daily, till two and one-half years old, from 20 to 22 pounds of hay or its equivalent. But the calves never after receive, even in summer, any dry food till they are nine months old. The average feeding is so divided that the young portion receives less, the older more, till two and one-half years, when they begin to receive the regular rations of the older cattle, including the grain fodder as indicated above. The growth with this treatment is such that these animals (not Shorthorns) attain the following weights at various ages:

	Heifers. lbs.	Bulls. lbs.
Av. weight calves at 3 months	233	353
Av. weight calves at 6 months	351	472
Av. weight calves at 12 months	640	750
Av. weight calves at 2 years	1,184	1,300
Daily increase of calves	1.5	1.8
Daily increase in 2d year	1.4	1.5

SILOS AND ENSILAGE.

Ensilage is a new system of preserving green fodder for cattle during the winter months—a system that manifestly is of great benefit to cattle. It is accomplished by taking green fodder—say corn—cutting it up in fine pieces and preserving it from all contact with air until wanted to feed. The chopped fodder is called ensilage, and it is preserved in a building called a silo. A practical silo can be made by excavating to a depth of six feet, and adding a top of six feet in height. The bottom and sides, to the height of nine feet, should be built of stone and plastered smooth. The bottom should be cemented like a cistern. Cement may be substituted for plaster on the walls if the grounds are particularly damp, as all moisture must be excluded. The silo should be eight feet wide and twelve feet long. A silo of this size will contain 864 cubic feet of ensilage, or about twenty tons of feed. The frame portion of the building above the walls must be made of matched and surfaced boards and well put together. Such a silo can be best filled with fodder corn. The corn should be cut when the ears are in about that state best adapted for "roasting ears." It should be run through a fodder cutter and cut into pieces about half an inch long. As it is passed into the silo boys or men trample it down into the closest space. When filled to the top a thick layer of builders' felt is placed in the ensilage. This in turn is covered with six inches of straw. On the straw planks fitted to fill the space are laid and then weighted with stone, about 100 pounds to the square foot. Thus prepared the ensilage will remain sweet and unfermented during the entire winter. The cost of such a silo is about $50.

When opened to feed the cattle, the top two inches will be found to be spoiled. Below this it can be cut into with a hay knife and used as needed. The boards and pressure should be removed every evening, and the felt, boards and stones should be placed upon the silo while it is being filled after each day's work.

Cattle will not like the food at first, but will soon relish it, and eat it with extreme avidity. Stock, if cows, so fed—say thirty pounds twice a day for each animal—having, of course, their ordinary grain feed, will give one-third more of milk and butter than with dry feed. In fattening cattle ensilage will save about ten pounds of corn in making the same amount of beef.

To Cook Feed for Cattle.—To Cook Hay.—Cut it, wet it well, put it in an upright tank or cask, with a false bottom and tight cover, press it down firmly, and pass the steam in under the false cover.

To Cook Corn.—Soak as many barrels, half full, as you wish to cook, from 15 to 24 hours; turn on steam and cook until done, and the barrels will be full.

To Make Mush.—Fill as many barrels half full of water as you wish to make barrels of mush; bring the water nearly to a boil by passing the steam to the bottom; stir into each barrel from 1½ to 1¾ bushels of meal until well mixed; then cook until done, when the barrels should be full.

To Cook Vegetables.—Fill the barrels full, and if no other cover is at hand, chop the top fine with a shovel; then cover them up with meal or provender and cook until done; have holes in the bottom of the barrels to carry off condensed steam.

Nutritious Properties of Different Vegetables and Oil Cake, Compared with Each Other in Quantities.

Oil Cake	1.	Clover hay	4.
Peas and Beans	1.5	Hay	5.
Rice	1.6	Potatoes	14.
Wheat, grain	2.5	Old potatoes	20.
Wheat, flour	2.	Carrots	17.5
Oats	2.5	Cabbages	18.
Rye	2.5	Wheat straw	26.
Bran, wheat	2.75 and 3.	Barley	26.
Corn	3.	Oat	27.5
Barley	3.	Turnips	30.
Pea straw	3.		

Illustration.—2 lbs. of oil cake is equal to 18 lbs. of cabbage.

THE DAIRY.

From what has been said on the various characteristics of the different breeds of cattle, it must be evident that no very definite criteria of excellence can be given for all good dairy cows. But there are certain points in a good milker that can hardly be mistaken. She should be descended from the best milking stock; her head should be small or of medium size; muzzle fine and nostrils flexible and expanded; face long, slender and dishing; cheeks thin; eyes full, mild and prominent; horns delicate and waxy, and they may be either branching, lopped, crumpled or absent; long, thin lively ear, rather thinly haired on the inside; neck thin and small at its junction with the head; deep chest, but not too heavy before; back level and broad; well ribbed; belly large; low flank; wide thighs, but thin, short legs, and standing well apart; large milking veins; loose, capacious udder, rather square in form, coming well out behind; good teats; loose, mellow skin, of a yellow shade; and a fine, thick coat of glossy hair; and she must be of good disposition and free from tricks. Yet, with all the skill of a well practiced taste in the selection of animals, the dairyman will frequently find his theories and results at sad variance. One may sometime select a fine animal, with every appearance of good milking qualities, which is but a medium cow at the pail; and another that hardly seems worthy of notice, and which sets at defiance many established milking points and all preconceived notions of symmetry, may yet prove a good milker. A cow that runs to flesh while in milk is generally an indifferent animal for the dairy. Perfection in a cow consists in converting all she eats into milk while yielding it, and when dry in turning all she consumes into valuable meat.

Management of Dairy Cows.—A cow may have her first calf when between two and three years of age, according to her size and developments. After calving, if in cold weather, or not at pasture, she should be fed twice a day a pailful of warm water, with two or three quarts of light meal or bran in it, in addition to a moderate supply of her common food for two or three days. Avoid fat in a breeding cow. Too high feeding is the cause of milk fever, caked bag, garget and a host of evils; and too poor feed is almost equally objectionable. The average time of a cow with young is from 40 to 41 weeks; but they sometimes go only 34, and occasionally overrun 44. A dry, unoccupied stall or yard is best for her to calve in; and if there is any serious delay or difficulty in the operation, she may be assisted by placing the foetus in the right position, and gently pulling it with every throe of the dam. After the calf has drawn all he wants at morning and evening, the bag should be thoroughly and quickly emptied of all the milk. If strong and vigorous, the calf is the best doctor for garget or caked bag. He may be allowed to suck the cow or not, at the option of the owner; there are reasons for and against the practice, as will be seen under the head of raising calves, and each person must determine in his own case on which side the balance lies.

Milking.—This is an important operation, and on its proper performance depends much of the success of the dairyman. The work should be done in a stable if it can be, the cows tied or stanchioned as in their winter feeding, thus keeping them orderly and not exposed to storms, as when milked in a yard. A cow regularly, gently, yet quickly and thoroughly milked, will give much more than if neglected. The same milkers should milk the same cows daily if possible. They get used to each other, and both milker and cows are the better for it. If a herd of cows be separated into two divisions, each yielding the same quantity of milk, and one is given to a good milker and the other to a shiftless or lazy one, the latter will speedily reduce his milk much below the quantity obtained by the former; and if the milkers then exchange cows, they will be found to change quantity, too; those before affording the least soon giving the most. An indifferent milker ought never be tolerated in a herd; good ones are cheaper at double the price. It is best to milk at intervals of about 12 hours, which may be done when pastures are convenient, or cows are soiled or fed in the yard. But as this is not often the case, they should be milked early in the morning and turned into pasture, to fill themselves before the sun is oppressive; and if they are to be kept up at night, let them browse in the pasture as long as possible before they are brought to the yard or stable.

The Constituents of Milk are butter, which varies from 2 to 6 per cent; casein or cheese, usually 4 to 5 per cent, but sometimes varying from 3 to 15 per cent (the last excessive quantity yielded only by the first milk after calving); milk sugar, 4 to 6 per cent; salts or saline matter, .2 to .6 per cent, and water, 80 to 89 per cent.

Cream.—If milk be immediately set away in shallow vessels, after being taken from the cow, the cream rises to the surface, and carries with it most of the butter contained in the milk, and along with it much of its casein. Hence the great nutritive properties of buttermilk, which retains the casein in very large proportions, much of it being rejected by the butter in the separation from the cream. A temperature below 34 degrees will prevent the cream from rising in any considerable quantity, and preserve the milk unaltered for some weeks. Coagulating the milk from any cause will equally prevent the separation of the cream. The elevation of temperature within certain limits hastens the separation. Thus, at 50 degrees, the cream will mostly have risen in 36 hours; at 55 degrees, in 24; at 68 degrees, in 18 or 20, and at 77 degrees, in 10 or 12 hours. Heating the milk near the boiling point and then setting it away and allowing it to remain undisturbed will soon cause the cream to rise. In the celebrated Orange dairy, near Baltimore, Md., this system was practiced, by which not only most of the cream was secured for butter, but in consequence of its rapid separation the skimmed milk was sent to market apparently fresh; and the scalding imparted to it an agreeable flavor and apparent richness, which it did not really possess. We do not advise this practice where the sale of fresh milk is an object.

Butter.—Sour Cream.—Cream for the purpose of churning is usually allowed to become sour. It ought to be at least one day old, but may with advantage be kept several days in cool weather—if it be previously well freed from milk and be frequently stirred to keep it from curdling. This sour cream is put into the churn and worked in the usual way till the butter separates. This is collected into lumps, well beaten and squeezed free from the milk, and in some dairies is washed with pure cold water as long as the water is rendered milky. In other localities the butter is not washed, but after being well beaten is carefully freed from the remaining milk by repeated squeezing and drying with a clean cloth. Both methods, no doubt, have their advantages. In the same circumstances the washed butter may be more easily preserved in the fresh state, while the unwashed butter will probably posses a higher flavor.

Sweet Cream may be put into the churn and the butter be obtained, but in most cases it requires more labor and longer time, without, in the opinion of good judges, affording in general a finer quality of butter. In all cases the cream becomes sour during the agitation and before the batter begins distinctly to form.

Sourness of the Cream.—For the production of the best butter it is necessary that the cream should be sufficiently sour before it is put into the churn. Butter made from sweet cream is neither good in quality nor large in quantity, and longer time is required in churning. It is an unprofitable method.

Churning the Milk, with cream upon it, when soured to thickening is much practised by many excellent butter makers. We do not know of any particular difference in the quality of the butter produced from it than when the cream alone is churned.

The alleged advantages of churning the entire milk may be thus stated: The proper temperature can be readily obtained both in winter and summer. A hundred gallons of entire milk will give in summer 5 per cent more butter than the cream from the same quantity of milk will give. Butter of the best quality can be obtained without difficulty both in winter and summer. No special attention to circumstances or change of method is at any time required. The churning in winter and summer is alike simple and easy. The butter is not only of the best quality while fresh, but is also best for long keeping, when properly cured or salted.

Quickness in Churning.—The more quickly milk or cream is churned, the paler, the softer and the less rich the butter. The churning ought always to be regular; slower in warm weather that the butter may not be soft and white, and quicker in winter that the proper temperature may be kept up.

Over-Churning.—When the process of churning is continued after the full separation of the butter, it loses its fine yellowish, waxy appearance, and becomes soft and light-colored. The weight of the butter, however, is said to be considerably increased.

Temperature of the Milk or Cream.—Much also depends upon the temperature of the milk or cream when the churning is commenced. Cream, when put into the churn, should never be warmer than 55 degrees Fahrenheit. It rises during the churning from 4 degrees to 10 degrees above its original temperature. When the whole milk is churned, the temperature should be raised to 65 degrees, which is best done by pouring in hot water into the churn while the milk is kept in motion. In winter either of these temperatures may be easily attained. In cold weather it is often necessary to add hot water to the cream to raise it even to 55 degrees. But in summer, and especially in hot weather, it is difficult, even in cool and well ordered dairies (without the use of ice) to keep the cream down to this comparatively low temperature. Hence, if the cream be then churned, a second-rate butter at best is all that can be obtained.

Cleanliness is peculiarly necessary to the manufacture of good butter. Cream is remarkable for the rapidity with which it absorbs and becomes tainted by any unpleasant odors. It is very necessary that the air of the dairy should be sweet, that it should be often renewed, and that it should be open in no direction from which the bad odors can come.

Creameries.—The manufacture of butter, both in large private dairies and associated creameries, has of late years assumed a phase and importance unknown previous to the large foreign demand for that article from the United States. Much of the butter made in many of the smaller private dairies was inferior in quality, as unhappily it still continues, and was, of course, in limited demand as either a consumable or salable commodity. Large associated creameries, as well as those owned by private individuals, are now established and prosecuted in many of our states, and successfully managed by the use of improved implements and machinery. They make uniform qualities of butter, retaining its flavor for several months and bearing transportation abroad at remunerative prices. The processes of making are various. The milk, as soon as drawn from the cows, is strained into deep cans, in which by the aid of cold water and ice, either or both, the cream rises rapidly and a better condition than in the shallow pans heretofore in almost universal use. Steam or animal power is applied to churning the cream; the butter is well worked, salted and packed in tubs or stone jars.

Many large private dairies are managed essentially by the same process as the associated creameries, and in their exclusive supplies of milk from their own cows may furnish a higher average in quality over them. The dairy-house and appurtenances should be separated from contiguous buildings. Stone or brick with hollow walls is the best material for construction, with cement floors, perfect drainage, and an adjoining wooden ice-house. Or, if of wood, they should be doubly covered, to be cool in summer and temperate in winter. The interior should be amply furnished with all needful appliances to aid the work in the best manner, and an experienced, skillful hand to perform the labors.

Amount of Butter and Cheese Obtainable from Milk.—100 lbs. of milk contain about 3 lbs. of pure butter and about 7.8 lbs. of cheese; and average about 3.5 lbs. of common butter and about 11.7 lbs. of common cheese. 100 lbs. of skim milk yield about 13.5 lbs. of skim-milk cheese.

To Keep Milk Sweet and to Sweeten Sour Milk.—Put into the milk a small quantity of carbonate of magnesia.

A general remark or two may be made on all the processes of good butter making: Only the purest of salt, either foreign or domestic, should be used. A slate stone platform on which to lay the butter for working, and a flat lever of hard wood for pressing it is the best implement, rather than any rolling process which might make the butter "salvy." If pressing the butter into fancy cakes or pats for a ready market be necessary, let it be done in a machine for the purpose, with a selected stamp on the upper surface, and packed in convenient boxes for transportation.

To Preserve Butter Any Length of Time.—First, work out all the buttermilk; second, use rock salt; third, pack in air-tight jars or cans; fourth, keep in a cool place, and you will have nice butter for years, if desired to keep long. A short recipe, but it makes long butter.

SHEEP, SWINE AND POULTRY.

SHEEP.

Strictly speaking, there are no sheep indigenous to North America, excepting the Ovis Montana, or Rocky Mountain sheep. Before the introduction of the improved European breeds, during the present century, our sheep consisted generally of a hardy, long-legged, coarse, open-fleeced animal, which yielded, according to attention and feed, from one and a half to four pounds of indifferent wool. Although indifferently formed in comparison with the best breeds of the present day, being thin in breast and back, light quartered and slow in coming to maturity, they yet possessed some good qualities. They were prolific, and made excellent nurses. Our original stock was principally derived from England, where their counterparts may be seen at the present day, in the refuse breeds of that country. When these sheep were well selected and properly bred there was rapid and satisfactory improvements, and from such flocks, mixed with some of the more recently improved varieties, have sprung many valuable animals.

The Merino.—This is undoubtedly among the most ancient races of sheep extant. The prominent peculiarities of the Merino are the abundance and fineness of its fleece, the tenacity with which it is held, its crimped or spiral form, its felting properties, and the excessive quantity of yolk, giving to it that softness which distinguishes it from all others. Their large horns are common to several other varieties. Their hoofs are sometimes singularly long, reaching six or eight inches when allowed to grow. The horns, hoofs and wool scarcely differ in their chemical constituents, and the peculiar development of the two former is justly considered as an additional evidence of their wool bearing properties. The yolk, in most of the sheep, forms, with the dust which adheres to it, a firm crust on the exterior, and, together with the compactness of the fleece, it offers considerable resistance to the open hand on being pressed, giving the impression of rigidity. This outer covering repels the rain, the snow and the wind like a coat of mail, thus fitting the Merino to endure exposure better than any other sheep. On opening the crust the wool is found of a brilliant golden hue, sparkling with yolk, and firmly held together in masses, hardly distinguishable from the cocoon of the silk worm. The wool closely covers every part of the body and frequently the entire legs and head, excepting a part of the face.

Another peculiarity of the Merino is its longevity. They attain a great age when properly managed, and in healthy localities sometimes breed till a dozen years of age. The Merino may be described generally as a small-boned, closely-made, medium-sized sheep, varying from 60 pounds of live weight for a small ewe to 140 pounds for good-sized wethers and rams, in ordinary condition. They are light in the shoulders and chest, and are altogether more deficient in form than the best mutton sheep. This apparent difference is materially lessened when both are denuded of their fleece, as the longer pile of the latter covers defects which would manifest themselves under the closer covering of the Merino. The quality of their flesh, although tolerable, is much inferior to that of the so-called "mutton" breeds.

For breeding, the rams should be large, stout and well made, carrying his weight as compactly as possible. The nose should be convex; the face covered with a soft, velvety hair where not covered with wool; the eye lively and prominent; the veins near the lachrymal glands of a clear red; the horns rough; short neck; pendant dewlap not objectionable; full chest; broad shoulders; broad, level back; large quarters; tail large and well set up; good legs and sound hoofs, with a firm, easy, regular gait; the head carried high, with a look of boldness and decision, without in any degree approaching wildness or ferocity. The ewe should possess these characteristics generally, with such modifications as are suited to the sex. Great care should be taken to breed from such as are most perfect in all the essential points of constitution, form, size, weight, uniformity and fineness of fleece. The closest observation is requisite to select the best in all respects.

The Southdown.—This valuable sheep has been known and bred for a long time on the chalky downs of England, where it has always maintained the character of a hardy animal, yielding a medium quality of wool, and furnishing mutton of a superior flavor. The best have the head small and hornless; the face dark brown or gray; the lips thin, and the space between the nose and the eyes narrow; the under jaw or chap fine and thin; the ears wide apart, and the forehead and the whole space between well covered with wool, as a defense against the fly; the eye full and bright; the neck of a medium length, thin toward the head, but enlarging toward the shoulders, where it should be broad and high, and straight in its whole course above and below; the breast should be wide, deep and projecting forward between the fore-legs, indicating a good constitution and a disposition to thrive. Corresponding with this, the shoulders should be on a level with the back and not too wide above; they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it; the ribs coming out horizontally from the spine, and extending far backward, and the last rib projecting more than the others; the back flat from the shoulders to the setting on of the tail; the loin broad and flat; the rump long and broad, and the tail set high up and nearly on a level with the spine; the hips wide; the space between them and the last rib on either side as narrow as possible, and the ribs generally presenting a circular form like a barrel; the belly as straight as the back; the legs medium in length, proportionate with the body; the fore-legs straight from the breast to the foot; not bending inward at the knee, and standing far apart both before and behind; the hocks having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full and well let down; the bones fine, yet having no appearance of weakness, and of a dark color; the belly well defended with wool, and the wool coming down before and behind to the knee and to the hock; the wool close, curled and fine, and free from spiry projecting fibers.

The Cotswold.—The Cotswold and Lincoln possess a rather more desirable robustness, approaching in some few specimens almost to coarseness, as compared with the finest Leicesters. It is contended that the Cotswolds are more hardy in constitution than the more refined Leicesters, but they have now become so intermingled in their various crosses that few except experts can detect the difference between many individual sheep of one variety or the other; yet the improved Leicesters were undoubtedly resorted to, on the one side, for a nucleus to their refinement. They attain as large a size and yield as great an amount of wool of about the same value. These breeds scarcely differ more from each other than do flocks of the similar variety which have been separately bred for several generations. They are prolific, and when well fed the ewes will frequently produce two lambs at a birth, for which they provide liberally from their udder till the time for weaning. The weight of their fleece, in all these varieties, varies from six to twelve pounds clean wool per head.

Winter Management and Food.—Sheep should be brought into winter quarters soon after the severe frosts occur, as these diminish the feed and materially impair its nutritious qualities. They ought also to be removed from the grass lands before they become permanently softened by the rains, as they will injuriously affect their comfort and health; and it is equally objectionable from their poaching the sod. If the number be large when brought to the yards, they must be carefully divided into flocks of 100 or less, according to the size of the yards and sheds. The young and feeble must be separated from the others, and the ailing ones placed by themselves, and that no one may suffer from the others all should be classed as uniformly as possible as to strength. The yards must be dry, well supplied with a trough of fresh water and with comfortable sheds to which they can retire when they choose. In snowy winters, if water be not handy, snow will supply its place quite well.

Shelters in northern climates are indispensable to profitable sheep raising, and in every latitude north of the Gulf of Mexico they would be advantageous. There is policy as well as humanity in the practice. An animal eats much less when thus protected; he is more thrifty, less liable to disease, and his manure is richer and more abundant. The feeding may be done in the open yard in clear weather and under cover in severe storms. The shelters for sheep are variously constructed, to suit the taste or circumstances of the flock master. Sheep barns built upon a side hill will afford underground floors, surrounded by three sides of wall and open to the south, with sliding or swinging doors to guard against storms, and sufficient storage for the fodder may be made by scaffolds; or they may be constructed with 12 or 15-foot posts, on level ground, allowing them to occupy the lower part, with the fodder stored above. In all cases, however, thorough ventilation should be provided, for, of the two evils of exposure to cold or too great privation of air, the former is to be preferred. Sheep cannot long endure close confinement without injury. In all ordinary weather, a shed closely boarded on three sides, with a close roof, is sufficient protection, especially if the open side is shielded from bleak winds or leads into a well inclosed yard. If the apartment above is used for storage, the floors should be made tight, that no hay, chaff or dust can fall upon the fleece.

Racks and Mangers are indispensable to economical feeding. If the hay is fed on the ground the leaves and seeds, the most valuable part of the fodder, are almost wholly lost, and when wet the sheep in their restlessness while feeding will tread much of it into the mud. To make an economical box or rack take six light pieces of scantling, say three inches square, one for each corner and one for the center of each side. Boards of pine or hemlock, 12 or 15 feet long and 12 or 14 inches wide, may then be nailed on to the bottom of the posts for the sides, which are separated by similar boards at the ends, two and one-half feet long. Boards 12 inches wide raised above the lower ones by a space of 9 to 12 inches, are nailed on the sides and ends, which completes the rack. The edges of the opening should be made perfectly smooth to prevent chafing the wool. The largest dimensions above given are suitable for the larger breeds, and the smallest of Merinos, and still smaller are proper for their lambs. These should be set on dry grounds, or under the sheds, and they can easily be removed whenever necessary. Some prefer the racks made with slats, or smooth, upright sticks, in the form of the usual horse rack. There is no objection to this, but it should always be accompanied by a board trough affixed to the bottom, to catch the fine hay which falls in feeding. These may be attached to the side of a building or used double. A small lamb requires 15 inches of space, and a large sheep two feet for quiet, comfortable feeding, and at least this amount of room should be provided around the racks for every sheep.

Troughs may be variously constructed. The most economical are made with two boards of any convenient length, 10 to 12 inches wide. Nail the lower side of one upon the edge of the other, fastening both into a two or three-inch plank, 15 inches long and a foot wide, notched in its upper edge in the form required.

Food.—There is no better food for sheep than good upland hay, composed of the clovers and nearly all the cultivated grasses. Bean and pea straw are valuable, and especially the former, which, if properly cured, they prefer to the best hay; and it is well adapted to the production of wool. All the other straws furnish a good food, and sheep will thrive on them without hay when fed with roots or grain. Roots ought to be given them occasionally for a change, and especially to the ewes after lambing, if this occur before putting them on to fresh pasture. They keep the stomach properly distended, the appetite and general health good, and they render their winter forage nearly equal to their summer feed. Much grain is not suited to store sheep. It is too rich, and should be given sparingly, except to the lambs, the old ewes or feeble sheep, or to restore the ram after hard service. For the above purposes oats are the best; and if any other grain, beans or peas are given, it should be in small quantities. When there is a deficiency of hay and roots, grain may be used with straw. But the flock ought to be so fed as to receive the same amount of nourishment throughout every part of the year. The evenness and value of the fleece depends much upon this. When the amount of nutrition is great the wool secreting organs are distended, and the fiber becomes enlarged; when limited, they necessarily contract, and the fiber is small. This produces a want of trueness, which the experienced wool stapler readily detects, and does not fail to estimate against the value of the fleece. Sheep ought to have a full supply of salt, and if accessible, sulphur, ashes, tar and clay would frequently be nibbled by them when their stomach required either. Pine or hemlock boughs are a good substitute for tar, and afford a most healthful change in the winter food of sheep. Entire cleanliness and dryness are also essential to the health of the flock. The smaller sizes of sheep may be well sustained on two and a half pounds of hay, but larger sheep will consume from three and a half to four, or even five, pounds per day. Sheep, like all other animals, when exposed to cold, will consume much more than if well protected, or than during a warmer season.

The Care of Ewes with Young is an important consideration, as the lamb is sometimes the only profit yielded by the flock, for when fodder is high or wool low, the fleece will barely pay for the food and attention. Pregnant ewes require the same food as at all other times, but caution is necessary to prevent injury or abortion, which is often the result of excessive fat, feebleness or disease. The first may be remedied by spare diet and both the last by restored health and generous food. Sudden fright, as from dogs or strange objects, long or severe journeys, great exertions, unwholesome food, blows in the region of the foetus and some other causes produce abortion.

The Summer Management of sheep is very simple. A good pasture in which there is an abundance of short, nutritious grass and plenty of pure water should be furnished. A shed, open on one side, should be provided for shelter from the noonday sun and storms. In this shed a trough should be placed, in which a supply of salt should be kept constantly. The practice of keeping sheep in the same pasture with cows is not advisable, as the gentlest of cows will sometimes hook and badly injure them. Do not allow rams to run with the ewes, but keep them in separate pasture, or, if unruly, at the barn. If permitted to remain with the ewes, lambs are liable to be dropped from late in the winter or early in the spring until the sheep are turned out to grass, a source of great annoyance to the owner as well as a cause of considerable loss, as they must be sold in small lots, while the trouble of feeding and weaning is increased very materially.

Shearing.—The sheep should be brought out upon a clean floor or a platform slightly raised from the floor, all tags or portions of wool covered with manure cut off, and feet cleaned to prevent soiling the fleece. The sheep should then be set on its rump, and the wool shorn from its neck and fore-shoulders, then laid upon one side and the upper side sheared, then turned and the wool taken from the other side. Take great care not to cut the skin or teats. The shearer should be quiet and gentle, and keep the sheep in these uncomfortable positions just as short a time as possible. The labor of shearers has been greatly reduced by the introduction of a sheep-shearing machine, with which one man can shear ten sheep per hour, cutting the fleece evenly and closely. If wounds are made a mixture of tar and grease ought to be applied. After shearing, such horns and hoofs as are likely to be troublesome should be sawed and pared. The branding or marking is essential to distinguish them from other flocks, and this is done by clipping a cut of some shape or punching a hole or holes through one or both ears, or painting on the shoulder, side or rump. A brush or marking iron is used for this latter purpose, with paint made of red lead or lamp-black, to which a little spirits of turpentine is first added, and then diluted with linseed or lard oil. If the weather be cool, and especially if severe storms occur after washing or shearing, the flock should be housed. If sultry, they should have a cool, shady retreat, where they will be shielded from the flies and heat. Blisters and permanent injury to the skin and fleece are frequently the result of such exposure. Shade trees in their pastures contribute much to the comfort of sheep, when exposed to the blazing sun. A close examination of the skin should be made at shearing for the detection of disease or vermin.

To Fatten Sheep.—Sheep will fatten readily on good clover hay alone, if the hay has been cut in full bloom, so as to retain all its juices before they are turned into woody fiber, and of a good green color. A sheep of say 120 pounds live weight will consume 21 pounds of clover hay per week and increase in weight 2 pounds. Allowing that it would ordinarily take 14 pounds to keep it in good stationary condition, an expenditure of 7 pounds of hay extra will produce 1⅓ pounds of mutton, worth in the spring 10 cents—perhaps more—so that the hay is literally realizing to the farmer at the rate of $30 or more to the ton. No other stock, we think, will give a return for the trouble of fattening like this. To fatten sheep more rapidly the daily addition of a small quantity of oats to their feed will produce good effects. Keep their quarters dry, well ventilated and abundantly littered with clean straw, with freedom of access to good water, and an occasional taste of salt. The health of sheep during the grazing season will be promoted by giving the sheep tar at the rate of a gill a day for every 20 sheep; and, if given pine boughs once or twice a week, they will create appetite, prevent disease and increase their health. The best sheep to keep, both for wool and mutton, is the American Merino.

To Protect Sheep from the Gad Fly.—In August and September this fly lays its eggs in the nostrils of sheep, where they are hatched, and the worms crawl into the head, and very frequently eat through the brain. In this way many sheep are destroyed. As a protection, smirch their noses with tar. Lay some tar in a trough or on a board, and strew fine salt on it. The sheep will finish the operation. The tar will protect them, and what they eat will promote their health.

Positive Cure for Foot Rot in Sheep.—This is caused by exposure to bad weather, more especially to wet pasturage, etc. When lame, pass them through a trough containing a warm solution of arsenic, of nearly the following strength: 4 ozs. arsenic, 4 ozs. of soda ash or potash, 1 gal. of water. Boil till dissolved; keep it about three inches deep, so as to cover the foot as the sheep walk through; the trough should be about 20 feet long, and just wide enough to admit one sheep walking after the other.

Mr. Culley's Red Salve, to Cure Rot in Sheep.—Mix 4 ozs. of the best honey, 2 ozs. of burnt alum, reduced to powder, and ½ lb. of Armenian bole, with as much train or fish oil as will convert these ingredients into the consistence of a salve. The honey must first be gradually dissolved, when the Armenian bole must be stirred in; afterward the alum and train oil are to be added.

To Improve the Wool of Sheep by Smearing.—Immediately after the sheep are shorn, soak the roots of the wool that remains all over with oil or butter and brimstone, and three or four days after wash them with salt and water.

To Mark Sheep Without Injury to the Wool.—To 30 spoonfuls of linseed oil add 2 ozs. of litharge, 1 oz. of lamp-black; boil all together and mark the sheep therewith.

SWINE.

There are but two objects in keeping swine—for breeding and for slaughter—and their management is consequently simple. Those designed for breeding should be kept in growing condition, on light food, and have every advantage for exercise. Such as are destined exclusively for fattening ought to be steadily kept to the object. It is the usual practice with extensive pork raisers in this country to let spring pigs run at large for the first 15 months, with such food as is convenient, and if fed at all it is only to keep them in moderate growth till the second autumn. They are then put up to fatten, and in the course of 60 or 90 days are fed off and slaughtered. During this brief period they gain from 50 to 100 per cent more of dressed weight than in the 15 or 18 months preceding, nor even then do they yield a greater average weight than is often attained by choice, thrifty pigs, which have been well fed from weaning to the age of eight or ten months.

It is most economical to provide the swine with a fine clover pasture to run in during the spring and summer, and they ought also to have access to the orchard to pick up all the unripe and superfluous fruit that falls. They should also have the wash of the house and the dairy, to which add meal and sour in large tubs or barrels. Not less than one-third and perhaps more of the whole grain fed to swine is saved by grinding and cooking or souring. Yet care must be observed that the souring be not carried so far as to injure the food by putrefaction. A mixture of meal and water, with the addition of yeast or such remains of a former fermentation as adhere to the side or bottom of the vessel, and exposure to a temperature between 68 degrees and 77 degrees will produce immediate fermentation. In this process there are five stages—the saccharine, by which the starch and gum are converted into sugar; the vinous, which changes the sugar into alcohol; the mucilaginous, sometimes taking the place of the vinous and which occurs when the sugar solution of fermenting principle is weak, producing a slimy, glutinous product; the acetic, forming vinegar; and the putrefactive, which destroys all the nutritive principles and converts them into a poison. The precise point in fermentation when the food becomes most profitable for feeding has not yet been satisfactorily determined, but that it should stop short of the putrefactive and probably the acetic is certain.

The roots for fattening animals ought to be washed and steamed or boiled, and when not intended to be fermented the meal ought always to be scalded with the hot roots. Such a quantity of salt as will not sour may be added to every preparation for swine. Potatoes are the best roots for swine; then parsnips, orange or red carrots, white or Belgian sugar beets, mangold, wursel, in the order mentioned. The nutritive properties of turnips are diffused through so large a bulk that we doubt if they can ever be fed to fattening swine with advantage, and they will barely sustain life when fed to them uncooked. There is a great loss in feeding roots to fatten swine without cooking. The animal machine is an expensive one to keep in motion, and it should be the object of the farmer to put his food in the most available condition for its immediate conversion into fat and muscle. Swine ought to be kept perfectly dry and clean and provided with a warm shelter, to which they can retire at pleasure. This will greatly hasten the fattening and economize the food. A hog ought to have three apartments, one each for sleeping, eating and evacuations, of which the last ought to occupy the lowest and the first the highest level, so that nothing shall be drained and as little carried into the first two as possible. They must be regularly fed three times a day, and if there is a surplus it must be removed at once. If they are closely confined in pens, give them as much charcoal twice a week as they will eat. This corrects any tendency to disorders of the stomach. Rotten wood is an imperfect substitute for charcoal. Greaves, scraps and cracklings, as they are variously called, the residuum of rough lard or tallow after expressing the fat, are a good change and an economical food. Some animal food, although not essential, is always acceptable to swine. When about to finish them off, many feed for a few weeks on hard corn. This is proper when slops or indifferent food have been given, and meal cannot be conveniently procured; but when fattened on sound roots and meal it is a wasteful practice, as the animal thus falls behind his accustomed growth. It is better to give him an occasional feed of the raw grain for a change and to sharpen his appetite.

Fattening Power of Foods, Production of Pork, Beef, Etc.—Carefully conducted experiments prove that 1 bushel of corn, weighing 56 lbs., will produce 10½ lbs. of pork. Throwing off 1-6 to come at the net weight, gives 8 2-5 lbs. of pork as the proceeds of 1 bushel of corn, or 1 lb. of pork as the product of 6 2-3 lbs. of corn. 1 lb. of pork is made by 3 4-5 lbs. of cooked corn meal. Experiments made by C. M. Clay, of Kentucky, showed that 1 bushel of dry corn made 5 lbs. 10 ozs. of pork; of boiled corn, 14 lbs. 7 ozs., and boiled meal, 16 to 18 lbs. The following table shows the relation which the price of corn bears to that of pork on the assumption that it requires 6 2-3 lbs. of corn to produce 1 lb. of pork.

Table Showing the Price of Pork per Pound at Different Prices per Bushel for Corn.

Corn per bu., Cents.	Pork per lb., Cents.	Corn per bu., Cents.	Pork per lb., Cents.
12½	1.50	38	4.52
15	1.78	40	4.76
17	2.00	42	5.00
20	2.38	45	5.35
22	2.62	50	5.95
25	2.96	55	6.54
30	3.57	60	7.14
33	3.92	65	7.74
35	4.00	70	8.57

Gross and Net Weight and Price of Hogs.—A short and simple method for finding the net weight or price of hogs, when the gross weight is given, and vice versa.

Note.—It is generally assumed that the gross weight of hogs, diminished by one-fifth, or 20 per cent of itself, gives the net weight, and the net weight, increased by one-fourth, or 25 per cent of itself, equals the gross weight.

To find the net weight, or gross price: Multiply the given number by .8 (tenths).

Example.—A hog weighing 365 lbs. gross will weigh 292 lbs. net, and pork at $3.65 net, is equal to $2.92 gross.

365
———
292.0

To find the gross weight, or net price: Divide the given number by .8 (tenths).

Example.—A hog weighing 348 lbs. net weight 435 lbs. gross; and pork at $3.48 gross is equal to $4.35 net.

8)348.0
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435

POULTRY.

Choice varieties of fowls add a pleasant feature to the farm premises. They engage the attention and sympathy of the juvenile farmers, and the time bestowed in the poultry yard keeps them from mischief, is an agreeable and salutary relief from toil and study, and elicits the taste, the judgment and the kindlier feelings of humanity, which are to be matured in the future accomplished breeder. When properly managed, poultry are a source of considerable profit, yielding more for the food they consume than any other stock, although their value is not often considered.

Hens, or Barn Door Fowls, are the most numerous and profitable and the most generally useful of the feathered tribe. The hen is peculiarly an egg producing bird. She has the same predisposition for laying that the cow has for secreting milk. Some breeds are better adapted for this object than others, but in all that have ever come within our notice, the proper food and circumstances are alone wanting to produce a reasonable quantity of eggs. The egg consists of three distinct parts—the shell, the white and the yolk. A good-sized egg will weigh 1,000 grains, of which about 107 are shell, 604 are white and 289 are yolk. Of the shell, 97 per cent is carbonate of lime, 1 per cent phosphate of lime and magnesia, and 2 per cent albumen. The white consists of 12 per cent of albumen, 2.7 of mucus, 0.3 of salts, and 85 of water. The yolk has about 17.4 per cent of albumen, 28.6 of yellow oil, 54 of water, with a trace of sulphur and phosphorus. The above are the constituents of eggs, which has been formed when the bird has free access to the various articles which constitute her natural food. But they vary with circumstances. When full fed and denied all access to lime, she will form an egg without the shell, and deliver it enclosed in the membrane or sack which always surrounds the white, when covered by the shell. When scantily fed they will frequently lay; but from a deficiency of nutriment the egg will be meager and watery, and possess but a small portion of the nutritious qualities peculiar to them. To produce the largest number of good eggs several conditions are important, and they must especially have an abundance of the right kind of food. This is the most readily obtained in part from animal food. In warm weather, when they have a free range, they can generally supply their wants in the abundance of insects, earth worms and other animal matters within their reach. The large proportion of albumen contained in their eggs, requires that much of their food should be highly nitrogenized, and when they cannot procure this in animal matter it must be given in grains containing it.

If the usual qualities of hens, a breed of peculiar elegance, of graceful forms and beautiful plumage, be added, together with entire adaptation to the economical purposes required, good layers and good carcass, we have a combination of utility, luxury and taste in this bird which should commend them as general favorites. They can everywhere be kept with advantage except in dense cities. A hen that costs a few shillings, if provided with a suitable range, will consume 50 to 80 cents' worth of food, and produce from 100 to 200 eggs per annum, worth two or three times the cost of feed and attention.

The food of hens may consist of different kinds of grain, either broken, ground or cooked; roots, and especially boiled potatoes, are nutritious and economical; green herbage, as clover and many of the grains, chickweed, lettuce, cabbage, etc., will supply them with much of their food, if fresh and tender. Though not absolutely essential to them, yet nothing contributes so much to their laying as unsalted animal food. This is a natural aliment, as is shown by the avidity with which they pounce on every fly, insect or earthworm which comes within their reach. It would not, of course, pay to supply them with valuable meat, but the blood and offal of the slaughter houses, refuse meat of all kinds, and especially the scraps or cracklings to be had at the melters' shops, after soaking them for a few hours in warm water, is one of the best and most economical kinds of food. Such, with boiled meal, is a very fattening food. Grain is at all times best for them when ground and cooked, as they will lay more, fatten quicker and eat much less when it is fed to them in this state; and it may be thus used unground, with the same advantage to the fowls, as if first crushed, as their digestive organs are certain to extract the whole nutriment. All grain is food for them, including millet, rice, the oleaginous seeds, as the sunflower, flax, hemp, etc. It is always better to afford them a variety of grain, where they can procure them at their option and select as their appetite craves.

They are also fond of milk, and indeed scarcely any edible escapes their notice. They carefully pick up most of the waste garbage around the premises and glean much of their subsistence from what would otherwise become offensive, and by their destruction of innumerable insects and worms, they render great assistance to the gardener. Of course, their ever busy propensity for scratching is indiscriminately indulged just after the seeds have been planted, and while the plants are young, which renders it necessary that they be confined in some close yard for a time; yet this should be as capacious as possible. Their food, if cooked, is better when given to them warm, not hot; and no more fed at a time than they will pick up clean. Besides their food, hens ought to be at all times abundantly supplied with clean water, egg or pounded oyster shells, old mortar or slacked lime. If not allowed to run at large, where they can help themselves, they must also be furnished with gravel to assist their digestion and a box or bed of ashes, sand and dust is equally essential to roll in, for the purpose of ridding themselves of vermin.

The hen house may be constructed in various ways to suit the wishes of the owner, and when tastefully built it is an ornament to the premises. It should be perfectly dry throughout, properly lighted by glass windows in the roof if possible, and capable of being made tight and warm in winter, yet afford all the ventilation desirable at any season. In this arrange the nests in boxes on the sides, in such a manner as to humor the instinct of the hen for concealment when she resorts to them. When desirable to set the hen, these nests may be so placed as to shut out the others, yet open into another yard or beyond the enclosure, so that they can take an occasional stroll and help themselves to food, etc. This prevents other hens laying in their nests while sitting, and may be easily managed by having their boxes hung on the wall of the building with a movable door made to open on either side at pleasure. Hens will lay without a nest-egg, but when broken up they ramble off and form new nests, if they are not confined. They will lay if kept from the cock, but it is doubtful if they will thus yield as many eggs. Hens disposed to sit at improper times should be dismissed from the common yard so as to be out of reach of the nests and plentifully fed till weaned from the inclination.

The chickens require to be kept warm and dry for the first few days after hatching, and they may be fed with hard boiled eggs, crumbs of bread or pudding, and milk or water, and allowed to scratch in the gravel in front of the hen, which should be confined in a coop for the first three or four weeks, after which they may be turned loose, when they will thrive on anything the older ones eat. Many use them for the table when they are but a few weeks old; but they are much less valuable for this purpose till they have attained to near or quite full maturity. The white-legs are preferred by some, from the whiteness and apparent delicacy of the meat; but the yellow and dark-legged are good. The color of the feathers does not seem to affect the quality of the flesh or their character for laying. If we consider the principle of the absorption and retention of heat, we should assume the white coat to be best, as it is coolest in summer when exposed to the sun, and warmest in winter. Yet some of the white breeds are delicate and do not bear rough usage or exposure.

The Sex of Eggs.—Mr. Genin lately addressed the Academy des Sciences, France, on the subject of the sex of eggs. He affirms that he is now able, after having studied the subject for upward of three years, to state with assurance that eggs containing the germ of males have wrinkles on their smaller ends, while female eggs are smooth at the extremities.

To Increase the Laying.—Cayenne pepper, pulverized, at the rate of one teaspoonful each alternate day to one dozen fowls.

Gapes or Pip is generally owing to drinking unwholesome or dirty water. Remove the white blister on the tip of the tongue and wash with sharp vinegar, diluted with warm water; or compel the bird to swallow a large lump of fresh butter, mixed with Scotch snuff. It has been removed by opening the mouth and forcing a pigeon feather with a tuft of the feather left on the end, the other being stripped off, down the windpipe, and gently turning it as withdrawn, to be repeated the following day if necessary. This detaches large numbers of slender red worms collected in the larnyx of the throat, which impedes respiration and swallowing. A little spirits of turpentine mixed with the food is a preventive as are also clean, whitewashed premises and good food. Feed for a few days with light food, soaked bran and cabbage or lettuce chopped fine. Roup, catarrh or swelled head is shown by feverish symptoms, swollen eyelids (frequently terminating in blindness), rattling in the throat and temporary strangulation. These are accompanied by a highly offensive watery discharge from the mouth and nostrils, loss of appetite and much thirst. They should be placed near the fire; their head bathed in warm Castile soapsuds, or milk and water. Stimulating food, as flour or barley meal, mustard and grated ginger, mixed and forced down the throat, Boswell says, has been effectual in their speedy restoration. This, like many other diseases, is contagious, and when it appears the bird should be at once separated from the flock. Flux is cured by the yolk of an egg boiled hard and boiled barley soaked in wine or cider. Costiveness is removed by giving bran and water with a little honey; or give a small dose of castor oil. Vermin are destroyed by giving them clean sand and ashes to roll in, adding a little quicklime if necessary. Crude kerosene is perhaps the best remedy for lice. Swabbed along the roosts and laying boxes, or on the under feathers of the fowl, it has proved destructive to these vermin. Carbolic acid, or "heavy oil" (a distillation from gas-tar), is also an effective remedy for vermin, applied in the same manner. Entire cleanliness is necessary for the avoidance of this and other diseases; a perfectly dry range is also essential; nor should there be too many together, as this is a fruitful source of disease.

CABINET MAKERS' DEPARTMENT.

POLISH.—For New Furniture.—Alcohol, 98 per cent, 1 pt.; gums copal and shellac, of each 1 oz.; dragon's blood, ½ oz. Mix and dissolve by setting in a warm place.

Apply with a sponge (it is best in the sun or a warm room) about three coats, one directly after the other as fast as dry, say fifteen to twenty minutes apart; then have a small bunch of cotton batting tied up in a piece of woolen; wet this in alcohol and rub over the surface well; now go over the surface with a piece of tallow, then dust on rotton stone from a woolen bag and rub it with what is often called the heel of the hand; now wipe it off with cotton cloth, and the more you rub with this last cloth, the better will be the polish.

Although this professes to be for new work, it does not hurt the looks of old, not the least bit; try it, all who want their furniture to show a gloss and answer in place of looking-glasses.

If soldiers will try it on their gun-stocks, they will find it just the thing desired.

2. Polish for Reviving Old Furniture, Equal to the "Brother Jonathan."—Take alcohol, 1½ ozs.; spirits of salts (muriatic acid), ½ oz.; linseed oil, 8 ozs.; best vinegar, ½ pt.; and butter of antimony, 1½ ozs.; mix, putting in the vinegar last.

It is an excellent reviver, making furniture look nearly equal to new, and really giving a polish to new work, always shaking it as used. But if you cannot get the butter of antimony, the following will be the next best thing:

3. Polish for Removing Stains, Spots and Mildew from Furniture.—Take of 98 per cent alcohol, ½ pt.; pulverized resin and gum shellac, of each ¼ oz. Let these cut in the alcohol; then add linseed oil, ½ pt.; shake well, and apply with a sponge, brush, or cotton flannel, or an old newspaper, rubbing it well after the application, which gives a nice polish.

These are just the thing for new furniture when sold and about to be taken out of the shop; removing the dust and giving the new appearance again.

4. Jet or Polish for Wood or Leather, Black, Red or Blue.—Alcohol (98 per cent), 1 pt.; sealing wax, the color desired, 3 sticks; dissolved by heat, and have it warm when applied. A sponge is the best to apply it with.

For black on leather it is best to apply copperas water first, to save extra coats; and paint wood the color desired also, for the same reason. On smooth surfaces, use the tallow and rotten stone as in the first polish. It may be applied to carriage-bodies, cartridge-boxes, dashes, fancy baskets, straw bonnets, straw hats, etc.

FURNITURE.—Finishing with Only One Coat of Varnish, Not Using Glue, Paste or Shellac.—Take boiled linseed oil and give the furniture a coat with a brush, then immediately sprinkle dry whiting upon it and rub it in well with your hand, or a brush which is worn rather short and stiff, over all the surface—the whiting absorbs the oil; and the pores of the wood are thus filled with a perfect coat of putty, which will last for ages; and water will not spot it nor have any effect upon it.

For mouldings and deep creases in turned work, you can mix them quite thick, and apply them together, with the old brush, but on smooth surfaces, the hand and dry whiting are best. If black walnut is the wood to be finished, you will put a trifle of burnt umber in the whiting; if for cherry, a little Venetian red; beech or maple will require less red. Only sufficient is to be used, in either case, to make the whiting the color of the wood being finished. Bedstead-posts, banisters, or standards for bedsteads and all other turned articles can have the finish put on in the lathe, in double quick time; spreading a newspaper on the lathe to save the scattering whiting, applying it with the hand or hands, having an old cloth to rub off the loose whiting which does not enter the pores of the wood; the same with smooth surfaces also.

This preparation is cheap; and it is a wonder that furniture men have not thought of it before. Three coats of varnish without it is not as level as one with it, from the fact that some of the varnish enters the pores of the wood and does not dry smooth; but with the pores filled with this preparation, of course, it must dry smooth and level, without rubbing down.

STAINS.—Mahogany on Walnut, Natural as Nature.—Apply aquafortis by means of a rag tacked to a stick; for if you use a brush it will very soon destroy it. Set the furniture in the hot sun to heat in the aquafortis; if no sun, heat it in by a stove or fire.

It is better if heated in, but does quite well without heating. Finish up in every other way as usual.

This finish is applicable to fancy tables, stands, lounges, coffins, etc., and equally beautiful on knots and crotches, giving walnut the actual appearance of mahogany, and as it is appearances only that most people depend upon, why will not this do as well as to transport timber from beyond the seas.

2. **Rosewood Stain, Very Bright Shade.—Used Cold.**—Take alcohol, 1 gal.; camwood, 2 ozs.; let them stand in a warm place 24 hours; then add extract of logwood, 3 ozs.; aquafortis, 1 oz.; and when dissolved it is ready for use; it makes a very bright ground, like the most beautiful rosewood—one, two or more coats, as you desire, over the whole surface.

This part makes the bright streaks or grains; the dark ones are made by applying, in waves, the following:

Take iron turnings or chippings, and put vinegar upon them; let it stand a few hours and it is ready to apply over the other, by means of a comb made for graining; or a comb made from thinnish India-rubber; the teeth should be rather good length; say half an inch, and cut close together or farther apart, as desired; and with a little practice, excellent imitation will be made.

This, for chairs, looks very beautiful to apply the darkening mixture by means of a flat, thin-haired brush, leaving only a little of the red color in sight; and if you want to make the cringles, as sometimes seen in rosewood, it is done with a single tooth or pen, bearing on sometimes hard and then light, etc., etc. All can and must be got by practice.

The above stain is very bright. If, however, you wish a lower shade, use the next recipe.

3. **Rosewood Stain.—Light Shade.**—Take equal parts of logwood and redwood chips, and boil well in just sufficient water to make a strong stain; apply it to the furniture while hot, 1 or 2, or even 3 coats, may be put on, one directly after the other, according to the depth of color desired.

For the dark lines, use the iron chippings as in the above recipe. Or, if a rose-pink is desired, use the following:

4. **Rose-Pink Stain and Varnish, Also Used to Imitate Rosewood.**—Put an ounce of potash into a quart of water, with red sanders, 1½ ozs.; extract the color from the wood and strain; then add gum shellac, ½ lb.; dissolve it by a quick fire; used upon logwood stain for rosewood imitation.

5. **Black Walnut Stain.**—Whenever persons are using walnut which has sap-edges, or if two pieces are being glued together which are different in shade, or when a poplar panel, or other wood is desired to be used to imitate black walnut, you will find the following to give excellent satisfaction:

Spirits of turpentine, 1 gal.; pulverized gum asphaltum, 2 lbs. Put them into an iron kettle and place upon a stove which prevents the possibility of fire getting at the turpentine; dissolve by heat, frequently stirring until dissolved. Put into a jug or can while hot.

When desired to use any of it, pour out and reduce with turpentine to the right shade for the work being stained. With a little practice you can make any shade desired. If used with a brush over a red stain, as mentioned in the rosewood stain recipes, especially for chairs and bedsteads, it very nearly resembles that wood. Mixing a little varnish with the turpentine when reducing it, prevents it from spotting, and causes it to dry quicker. By rubbing a little lamp-black with it you can make it a perfect black, if desired.

6. **Cherry Stain.**—Take rain water, 3 qts.; anotta, 4 ozs.; boil in a copper kettle until the anotta is dissolved; then put in a piece of potash the size of a common walnut, and keep it on the fire about half an hour longer, and it is ready for use. Bottle for keeping.

This makes poplar or other light colored woods so near the color of cherry that it is hard to distinguish; and even improves the appearance of light colored cherry.

VARNISHES.—Black, with Asphaltum.—Spirits of turpentine, 1 gal.; pulverized gum asphaltum, 2¼ lbs.; dissolve by heat over a stove fire.

It is applied to iron, frames of door plates, back-grounds in crystal painting, etching, upon glass, and also for fence wire or screens which are to go into water above mills to turn leaves and driftwood, etc.

2. **Patent Varnish, for Wood or Canvas.**—Take spirits of turpentine, 1 gal.; asphaltum, 2¼ lbs.; put them into an iron kettle which will fit upon a stove and dissolve the gum by heat. When dissolved and a little cool, add copal varnish, 1 pt., and boiled linseed oil, ½ pt.; when cold it is ready for use. Perhaps a little lamp-black would make it a more perfect black.

If done over a common fire, the turpentine will be very likely to take fire and be lost; and, perhaps, fire the house or your clothes.

This is valuable for wood, iron or leather; but for cloth, first make a sizing by boiling flax-seed one quart, in water one gallon; applying of this for the first coat; the second coat of common thick black paint; and lastly a coat of the varnish. Some think that sperm oil, the same quantity, makes a little better gloss.

3. **Varnish, Transparent, for Wood.**—Best alcohol, 1 gal.; nice gum shellac, 2½ lbs. Place the jug or bottle in a situation to keep it just a little warm, and it will dissolve quicker than if hot or left cold.

This varnish is valuable for plows, or any other article where you wish to show the grain of the wood, and for pine, when you wish to finish up rooms with white, as the "Porcelain Finish;" a coat or two of it effectively prevents the pitch from oozing out, which would stain the finish.

If this stands in an open dish, it will become thick by evaporation; in such cases add a little more alcohol, and it is as good as before. Some do use as much as three and a half pounds of shellac, but it is too thick to spread well; better apply two or more coats, if necessary. When a black varnish is wanted, you can rub lamp-black with this, for that purpose, if preferred before the asphaltum, last given.

BARBERS' AND TOILET DEPARTMENT.

HAIR DYE.—In Two Numbers.—No. 1. Take gallic acid, ½ oz.; alcohol, 8 ozs.; soft water, 16 ozs.; put the acid in the alcohol, then add the water.

No. 2. Take for No. 2, crystallized nitrate of silver, 1 oz.; ammonia, strongest kind, 3 ozs.; gum arabic, ½ oz.; soft water, 6 ozs. Observe, in making it, that the silver is to be put into the ammonia, and not corked until it is dissolved; the gum is to be dissolved in the water, then all mixed, and it is ready for use.

Barbers will probably make this amount at a time, as it comes much cheaper than in small quantities; but if families or others, for individual use, only wish a little, take drachms instead of ounces, which, you see, will make only one-eighth of the amount.

Directions for Applying.—First wash the whiskers or hair with the "shampoo," and rinse out well, rubbing with a towel until nearly dry; then with a brush apply No. 1, wetting completely, and use the dry towel again to remove all superfluous water; then with another brush (tooth brushes are best wet every part with No. 2, and it becomes instantaneously black; as soon as it becomes dry, wash off with hard water, then with soap and water; apply a little oil, and all is complete.

The advantages of this dye are that if you get any stain upon the skin, wipe it off with a cloth at the time, and the washing removes all appearances of stain; and the whiskers or hair never turn red, do not crock, and are a beautiful black.

However, cyanuret of potassium, 1 dr., to 1 oz. of water, will take off any stain upon the skin arising from nitrate of silver; but it is poison, and should not touch sore places nor be left where children may get at it.

Persons whose hair is prematurely gray will find less trouble in using than the restoratives; for when once applied nothing more needs being done for several weeks, while the restoratives are only slow dyes, and yet need several applications. But that all may have the chance of choosing for themselves, I give you some of the best restoratives in use.

HAIR RESTORATIVES AND INVIGORATORS.—Equal to Wood's, for a Trifling Cost.—Sugar of lead, borax and lac-sulphur, of each 1 oz.; aqua ammonia, ½ oz.; alcohol, 1 gill. These articles to stand mixed for 14 hours; then add bay rum, 1 gill; fine table salt, 1 tablespoon; soft water, 3 pts.; essence of bergamot, 1 oz.

This preparation not only gives a beautiful gloss, but will cause hair to grow upon bald heads arising from all common causes; and turn gray hair to a dark color.

Manner of Application.—When the hair is thin or bald, make two applications daily, until this amount is used up, unless the hair has come out sufficiently to satisfy you before that time; work it to the roots of the hair with a soft brush or the ends of the fingers, rubbing well each time. For gray hair one application daily is sufficient. It is harmless and will do all that is claimed for it, does not cost only a trifle in comparison to the advertised restoratives of the day, and will be found as good or better than most of them.

2. **Invigorator.**—Vinegar of cantharides, 1 oz.; cologne water, 1 oz., and rose water, 1 oz.; mixed and rubbed to the roots of the hair, until the scalp smarts, twice daily; has been very highly recommended for bald heads, or where the hair is falling out.

If there is no fine hair on the scalp, no restorative, nor invigorator on earth can give a head of hair. See remarks after No. 8.

3. **Another.**—Lac-sulphur and sugar of lead, of each 1 dr.; tannin and pulverized copperas, each 32 grs.; rose water, 4 ozs.; wetting the hair once a day for 10 or 12 days, then once or twice a week will keep up the color.

If it is only desired to change gray hair to a dark color the last will do it; but where the hair is falling out or has already fallen, the first is required to stimulate the scalp to healthy action.

4. **Another.**—Lac-sulphur and sugar of lead, of each 1 oz.; pulverized litharge (called lithrage), 1½ ozs.; rain water, 1 qt.; applying 3 mornings and skipping 3, until 9 applications—gives a nice dark color.

I obtained this of one of the Friends, at Richmond, Ind., and for turning white or gray hair it is a good one. The litharge sets the color, as the sulphate of iron does in the next. There is but little choice between them.

5. **Another.**—Rain water, 6 ozs.; lac-sulphur, ½ oz.; sugar of lead, ¼ oz.; sulphate of iron (copperas), ⅛ oz.; flavor with bergamot essence, if desired, and apply to the hair daily until sufficiently dark to please.

All the foregoing restoratives will change, or color the gray or white hair black, or nearly so; but let who will tell you that his restorative will give your hair its original color, just let that man go for all he is worth at the time; for as time advances his worth will be beautifully less.

6. **Hair Invigorator.**—A Wheeling barber makes use of the following invigorator to stop hair from falling out, or to cause it to grow in; it is a good one, so is the one following it:

Take bay rum, 1 pt.; alcohol, ½ pt.; castor oil, ½ oz.; carbonate of ammonia, ¼ oz.; tincture of cantharides, ½ oz. Mix and shake when used. Use it daily, until the end is attained.

7. **Another.**—Carbonate of ammonia, 1 oz.; rubbed up in 1 pt. of sweet oil. Apply daily until the hair stops falling out, or is sufficiently grown out.

This last is spoken of very highly in England as a producer of hair, "Where the hair ought to grow" and does not.

8. **Strong sage tea,** as a daily wash is represented to stop

hair from falling out; and what will stop it from falling is an invigorator and consequently good.

There is not a liniment mentioned in this book but which, if well rubbed upon the scalp daily for two or three months, will bring out a good head of hair; when the scalp has become glossy and shining, however, and no fine hair growing, you may know that the hair follicle or root, is dead; and nothing can give a head of hair in such cases, any more than grain can grow from ground which has had none scattered upon it. This condition may be known by the shining or glistening appearance of the scalp.

All heads as well as bodies should be often washed with soap and clean water; but if that is neglected too long, it becomes necessary to use something stronger to remove the grease and dandruff—then the following will be found just the thing to be desired.

SHAMPOOING MIXTURES.—For Five Cents per Quart.—Purified carbonate of potash, commonly called salts of tartar, 1 oz.; rain water, 1 qt.; mix, and it is ready for use.

Apply a few spoons of it to the head, rubbing and working it thoroughly; then rinse out with clean soft water and dry the hair well with a coarse, dry towel, applying a little oil of pomatum to supply the natural oil which has been saponified and washed out by the operation of the mixture. A barber will make at least $5 out of his 5 cents worth of material.

2. Another excellent shampoo is made by using aqua ammonia, 3 ozs.; salts of tartar, ¼ oz.; alcohol, ⅛ oz., and soft water, 2½ pts., and flavoring with bergamot. In applying, rub the head until the lather goes down; then wash out.

The next recipe also makes as good a shampoo mixture as I wish; for it kills so many birds at one throw that I do not wish to throw any other.

RENOVATING MIXTURES.—For Grease Spots, Shampooing and Killing Bedbugs.—Aqua ammonia, 2 ozs.; soft water, 1 qt.; saltpetre, 1 teaspoon; variegated shaving soap, 1 oz., or one 3-cent cake, finely shaved or scraped; mix all, shake well, and it will be a little better to stand a few hours or days before using, which gives the soap a chance to dissolve.

Directions.—Pour upon the place a sufficient amount to well cover any grease or oil which may get spilled or daubed upon coats, pants, carpets, etc., sponging and rubbing well and applying again if necessary to saponify the grease in the garment; then wash off with clear cold water.

Don't squirm now, for these are not half it will do—some people fly entirely off the handle when a preparation is said to do many things; for my part, however, I always admire an article in proportion to the labor which can be performed by it or with it. This preparation will shampoo like a charm; raising the lather in proportion to the amount of grease and dandruff in the hair. It will remove paint, even from a board, I care not how long it has been applied, if oil was used in the paint, and yet it does not injure the finest textures, for the simple reason that its affinity is for grease or oil, changing them to soap, and thus loosening any substance with which they may be combined.

If it is put upon a bedbug he will never step afterward, and if put into their crevises it destroys their eggs and thus drives them from the premises.

A cloth wet with it will soon remove all the grease and dirt from doors which are much opened by kitchen hands.

2. **Renovating Clothes—Gentlemen's Wear.**—To warm soft water, 4 gals., put in 1 beef's gall; saleratus, ½ lb. Dissolve.

Lay the garment on a bench and scour every part thoroughly by dipping a stiff brush into the mixture; spots of grease and the collar must be done more thoroughly and longer continued than other parts, and rinse the garment in the mixture by raising up and down a few times, then the same way in a tub of soft cold water; press out the water and hang up to dry; after which it needs brushing the way of the nap and pressing well under a damp cloth.

Beef's gall will set the color on silks, woolens or cotton—one spoon to a gallon of water is sufficient for this purpose. Spotted bombazine or bombazette washed in this will also look nearly equal to new.

3. **Faded and Worn Garments—To Renew the Color.**—To alcohol, 1 qt., add extract of logwood, ¼ lb.; loaf sugar, 2 oz.; blue vitriol, ¼ oz.; heat gently until all are dissolved; bottle for use.

Directions.—To one pint of boiling water put three or four teaspoons of the mixture, and apply it to the garment with a clean brush; wetting the fabric thoroughly; let dry; then suds out well and dry again to prevent crocking; brush with the nap to give the polish. This may be applied to silks and woolen goods having colors; but is most applicable to gentlemen's apparel.

COLOGNES.—Imperial.—Take oils of bergamot, 1 oz.; reroli, 1 dr.; pessamine, ¼ oz.; garden lavender, 1 dr.; cinnamon, 5 drops; tincture of benzoin, 1½ ozs.; tincture of musk, ¼ oz.; deodorized or cologne alcohol, 2 qts.; rose water, 1 pt. Mix.

Allow the preparation to stand several days, shaking occasionally, before filtering for use or bottling. This is rather expensive, yet a very nice article. See "Rose Water."

2. **Cologne for Family Use—Cheaper.**—Oils of rosemary and lemon, each ¼ oz.; bergamot and lavender, each 1 dr.; cinnamon, 8 drops; clove and rose, each 15 drops; common alcohol, 2 qts. Mix and shake 2 or 3 times daily for a week.

Colognes need only be used in very small quantities; the same is true of highly flavored oils or pomades; as too much, even of a good thing, soon disgusts those whom they were intended to please.

HAIR OILS.—New York Barbers', Star.—Castor oil, 6½ pts.; alcohol, 1½ pts.; oil of citronella, ½ oz.; lavender, ¼ oz.; mixed and shaken when used, makes one of the finest oils for the hair in use.

I have been told that this amount of alcohol does not cut the oil. Of course, we know that; that is, it does not become clear, neither do we want it to do so; it combines with the oil and destroys all the gumminess and flavor peculiar to castor oil, by which it becomes one of the best oils for the hair which can be applied. Gills, spoons, or any other measure will do as well, keeping the proportion of flavoring oils, and if the citronella cannot be got, use some other oil in its place; none are equal to it, however.

2. **Macassar, or Rose.**—Olive oil, 1 qt.; alcohol, 2½ oz.; rose oil, ½ dr.; tie chipped alkanet root, 1 oz., into 2 or 3 little muslin bags; let them lie in the oil until a beautiful red is manifested; then hang them up to drain, for if you press them you get out a sediment you do not wish in the oil.

3. **Fragrant, Home-Made.**—Collect a quantity of the leaves of any of the flowers that have an agreeable fragrance, or fragrant leaves, as the rose-geranium, etc.; card thin layers of cotton, and dip into the finest sweet oil; sprinkle a small quantity of salt on the flowers; a layer of cotton and then a layer of flowers, until an earthenware vessel, or a wide-mouthed glass bottle is full.

Tie over it a piece of bladder; then place the vessel in the heat of the sun; and in fifteen days a fragrant oil may be squeezed out, resembling the leaf used. Or, an extract is made by putting alcohol upon the flowers or leaves, in about the same length of time. These are very suitable for the hair, but the oil is undoubtedly the best.

4. **Pomade—Ox Marrow.**—One of the most beautiful pomades, both in color and action, is made as follows:

Take beef's marrow, 1 lb.; alkanet root, not chipped, 1 oz.; put them into a suitable vessel and stew them as you would render tallow; strain through two or three thicknesses of muslin, and then add of castor oil ¼ lb.; bay rum, 1 gill, which takes away the peculiar freshness of the marrow; then use the extract of the common rose-geranium to give it the flavor desired.

Half as much suet as marrow, also makes a very nice article; and can be used where the marrow is not easily obtained.

BALM OF A THOUSAND FLOWERS.—As strange as it may seem, some of the most astonishingly named articles are the most simple in their composition. Although thousands of dollars have been made out of the above named article, it is both cheap and simple:

Deodorized alcohol, 1 pt.; nice white bar soap, 4 ozs.; shave the soap when put in; stand in a warm place until dissolved; then add oil of citronella, 1 dr., and oils of neroli and rosemary, of each ½ dr.

It is recommended as a general perfume; but it is more particularly valuable to put a little of it into warm water, with which to cleanse the teeth.

RAZOR STROP PASTE.—Take the very finest superfine flour of emery and moisten it with sweet oil; or you may moisten the surface of the strop with the oil; then dust the flour of emery up it, which is perhaps the best way.

Nothing else is needed. You must not take any of the coarse flours, nothing but the finest will do. It is often mixed with a little oil and much other stuff which is of no use, and put up in little boxes and sold at 2 shillings, not having more than three cents worth of emery.

BAKERS' AND COOKING DEPARTMENT.

Remarks.—It may not be considered out of place to make a few remarks here, on the art, as also on the principles of cookery. For nearly all will acknowledge cooking not only to be an art, but a science as well. To know how to cook economically is an art. Making money is an art. Now, is there not more money made and lost in the kitchen than almost anywhere else? Does not many a hard-working man have his substance wasted in the kitchen? Does not many a shiftless man have his substance saved in the kitchen? A careless cook can waste as much as a man can earn, which might as well be saved. It is not what we earn, as much as what we can save, that makes us well off. A long and happy life is the reward of obedience to nature's laws; and to be independent of want is not to want what we do not need. Prodigality and idleness constitute a crime against humanity. But frugality and industry, combined with moral virtue and intelligence, will insure individual happiness and national prosperity. Economy is an institute of nature and enforced by Bible precept: "Gather up the fragments, that nothing be lost." Saving is a more difficult art than earning; some people put dimes into pies and puddings, where others only put in cents. The cent dishes are the most healthy.

Almost any woman can cook well if she has plenty with which to do it; but the real science of cooking is to be able to cook a good meal or dish with but little out of which to make it. This is what our few recipes shall assist you in doing.

As to the principles of cooking, remember that water can not be made more than boiling hot, no matter how much you hasten the fire you cannot hasten the cooking of meat, potatoes, etc., one moment. A brisk boil is sufficient. When meat is to be boiled for eating put it into boiling water at the beginning, by which its juices are preserved. But if you wish to extract these juices for soup or broth, put the meat in small pieces into cold water and let it simmer slowly.

The same principle holds good in baking also. Make the oven the right heat and give it time to bake through is the true plan. If you attempt to hurry it you only burn instead of cooking it done.

"If you attempt the boiling to hurry, the wood only is wasted
But in attempting the baking to hurry, the food as well isn't fit
to be tasted."

CAKES.—Federal Cake.—Flour, 2½ lbs.; pulverized white sugar, 1¼ lbs.; fresh butter, 10 ozs.; 5 eggs well beaten; carbonate of ammonia, ⅛ oz.; water, ½ pt., or milk is best, if you have it.

Grind down the ammonia, and rub it with the sugar. Rub the butter into the flour; now make a bowl of the flour (unless you choose to work it up in a dish), and put in the eggs, milk, sugar, etc., and mix well and roll out to about a quarter of an inch in thickness. Then cut out with a round cutter and place on tins so they touch each other, and instead of rising up thicker in baking they fill up the space between and make a square-looking cake, all attached together. While they are yet warm, drench over with white coarsely pulverized sugar. If they are to be kept in a show-case by bakers you can have a board as large as the tin on which you bake them, and lay a dozen or more tinsful on top of each other as you sprinkle on the sugar. I cannot see why they are called "Federal," for really they are good enough for any "Whig."

Ammonia should be kept in a wide-mouthed bottle, tightly corked, as it is a very volatile salt. It is known by various names, as "volatile salts," "sal volatile," "hartshorn," "hartshorn shavings," etc., etc. It is used for smelling bottles, fainting, as also in baking.

2. **Rough-and-Ready Cake.**—Butter or lard, 1 lb.; molasses, 1 qt.; soda, 1 oz.; milk or water, ½ pt.; ground ginger, 1 tablespoon, and a little oil of lemon; flour sufficient.

Mix up the ginger in flour, and rub the butter or lard in also; dissolve the soda in the milk or water; put in the molasses and use the flour in which the ginger and butter is rubbed up, and sufficient more to make the dough of a proper consistence to roll out; cut the cakes out with a long and narrow cutter, and wet the top with a little molasses and water to remove the flour from the cake; turn the top down into pulverized white sugar, and place in an oven sufficiently hot for bread, but keep them in only to bake, not to dry up. This and the "Federal" are great favorites in Pennsylvania, where they know what is good, and have the means to make it; yet they are not expensive.

3. **Sponge Cake, with Sour Milk.**—Flour, 3 cups; fine white sugar, 2 cups; 6 eggs; sour milk, ½ cup, with saleratus, 1 teaspoon.

Dissolve the saleratus in the milk; beat the eggs separately; sift the flour and sugar; first put the sugar into the milk and eggs, then the flour, and stir all well together, using any flavoring extract which you prefer, 1 teaspoon; lemon, however, is the most common. As soon as the flour is stirred in put it immediately into a quick oven; and if it is all put into a common square breadpan, for which it makes the right amount, it will require about 20 to 30 minutes to bake; if baked in small cakes, proportionately less.

4. **Sponge Cake with Sweet Milk.**—As sour milk cannot always be had, I give you a sponge cake with sweet milk.

Nice brown sugar, 1½ cups; 3 eggs; sweet milk, 1 cup;

flour, 3½ cups; cream of tartar and soda, of each 1 teaspoon; lemon essence, 1 teaspoon.

Thoroughly beat the sugar and eggs together; mix the cream of tartar and soda in the milk, stirring in the flavor also; then mix in the flour, remembering that all cakes ought to be baked soon after making. This is a very nice cake, notwithstanding what is said of "Berwick" below.

5. **Berwick Sponge Cake without Milk.**—Six eggs, powdered white sugar, 3 cups; sifted flour, 4 even cups; cream of tartar, 2 teaspoons; cold water, 1 cup; soda, 1 teaspoon; 1 lemon.

First beat the eggs 2 minutes and put in the sugar and beat 5 minutes more; then stir in the cream of tartar and 2 cups of the flour and beat 1 minute; now dissolve the soda in the water and stir in, having grated the rind of the lemon, squeeze in half of the juice only; and finally add the other 2 cups of flour and beat all 1 minute, and put into deep pans in a moderate oven. There is considerable beating about this cake, but if itself does not beat all the sponge cakes you ever beat, we will acknowledge it is to be the beating cake, all around.

6. **Surprice Cake.**—One egg; sugar, 1 cup; butter, ½ cup; sweet milk, 1 cup; soda, 1 teaspoon; cream of tartar, 2 teaspoons.

Flavor with lemon and use sufficient sifted flour to make the proper consistence, and you will really be surprised to see its bulk and beauty.

7. **Sugar Cake.**—Take 7 eggs and beat the whites and yolks separately; then beat well together; now put into them sifted white sugar, 1 lb.; with melted butter, ½ lb., and a small teaspoon of pulverized carbonate of ammonia.

Stir in just sufficient sifted flour to allow of its being rolled out and cut into cakes.

8. **Ginger Cake.**—Molasses, 2 cups; butter, or one-half lard if you choose, 1½ cups; sour milk, 2 cups; ground ginger, 1 teaspoon; saleratus, 1 heaping teaspoon.

Mash the saleratus, then mix all these ingredients together in a suitable pan and stir in flour as long as you can with a spoon; then take the hand and work in more, just so you can roll them by using flour dusting pretty freely; roll out thin, cut and lay upon your buttered or floured tins; then mix one spoon of molasses and two of water, and with a small brush or bit of cloth wet over the top of the cakes; this removes the dry flour, causes the cakes to take a nice brown and keep them moist; put into a quick oven and 10 minutes will bake them if the oven is sufficiently hot. Do not dry them all up, but take out as soon as nicely browned.

We have sold cakes out of the grocery for years, but never found any to give as good satisfaction as these, either at table or counter. They keep moist, and are sufficiently rich and light for all cake eaters.

9. **Tea or Cup Cakes.**—Four eggs; nice brown sugar, 21 cups; saleratus, 1 teaspoon; sour milk, 3 cups; melted butter or half lard, 1 cup; half a grated nutmeg; flour.

Put the eggs and sugar into a suitable pan and beat together;

dissolve the saleratus in the milk and add to the eggs and sugar; put in the butter and nutmeg also; stir all well; then sift in flour sufficient to make the mass to such a consistence that it will not run from a spoon when lifted upon it. Any one preferring lemon can use that in place of nutmeg. Bake rather slowly.

10. **Cake, Nice, without Eggs or Milk.**—A very nice cake is made as follows, and it will keep well also.

Flour 3½ lbs.; sugar, 1¼ lbs.; butter, 1 lb.; water, ½ pt.; having 1 teaspoon of saleratus dissolved in it. Roll thin and bake on tin sheets.

11. **Pork Cake, without Butter, Milk or Eggs.**—A most delightful cake is made by the use of pork, which saves the expense of butter, eggs and milk. It must be tasted to be appreciated, and another advantage of it is that you can bake enough some leisure day to last the season through, for I have eaten it two months after it was baked, still nice and moist.

Fat, salt pork, entirely free of lean or rind, chopped so fine as to be almost like lard, 1 lb.; pour boiling water upon it, ½ pt.; raisins seeded and chopped, 1 lb.; citron shaved into shreds, ¼ lb.; sugar, 2 cups; molasses, 1 cup; saleratus, 1 teaspoon, rubbed fine and put into the molasses. Mix these all together and stir in sifted flour to make the consistence of common cake mixtures; then stir in nutmeg and cloves finely ground, 1 oz. each; cinnamon, also fine, 2 ozs.; be governed about the time of baking it by putting a sliver into it; when nothing adheres it is done. It should be baked slowly.

You can substitute other fruit in place of the raisins, if desired, using as much or as little as you please, or none at all, and still have a nice cake. In this respect you may call it the accommodation cake, as it accommodates itself to the wishes or circumstances of its lovers.

When pork will do all we here claim for it, who will longer contend that it is not fit to eat? Who!

12. **Cider Cake.**—Flour, 6 cups; sugar, 3 cups; butter 1 cup; 4 eggs; cider, 1 cup; saleratus, 1 teaspoon; 1 grated nutmeg.

Beat the eggs, sugar and butter together and stir in the flour and nutmeg; dissolve the saleratus in the cider and stir into the mass and bake immediately in a quick oven.

13. **Ginger Snaps.**—Butter, lard and brown sugar, of each ¼ lb.; molasses, 1 pt.; ginger, 2 tablespoons; flour, 1 qt.; saleratus, 2 teaspoons; sour milk, 1 cup.

Melt the butter and lard and whip in the sugar, molasses and ginger; dissolve the saleratus in the milk and put in; then the flour, and if needed a little more flour, to enable you to roll out very thin; cut into small cakes and bake in a slow oven until snappish.

14.—**Jelly Cake.**—Five eggs; sugar, 1 cup; a little nutmeg; saleratus, 1 teaspoon; sour milk, 2 cups; flour.

Beat the eggs, sugar and nutmeg together; dissolve the saleratus in the milk and mix; then stir in flour to make only a thin batter like pancakes; 3 or 4 spoons of the batter to a common round tin; bake in a quick oven. Three or four of these thin cakes, with jelly between, form one cake, the jelly being spread on while the cake is warm.

15. **Roll, Jelly Cake.**—Nice brown sugar, 1½ cups; 3 eggs; sweet skim milk, 1 cup; flour, 2 cups, or a little more only; cream of tartar and soda, of each 1 teaspoon; lemon essence, 1 teaspoon.

Thoroughly beat the eggs and sugar together; mix the cream of tartar and soda with the milk, stirring in the flavor also; now mix in the flour, remembering to bake soon, spreading thin upon a long pan; and as soon as done spread jelly upon the top and roll up; slicing off only as used; the jelly does not come in contact with the fingers, as in the last or flat cakes.

Fifteen Kinds of Cake—

16. **Pound.**—Flour, 1 lb.; butter, 1 lb.; sugar, 1 lb.; eggs, 8; rosewater, 3 spoons; mace, etc.

17. **Genuine Whig.**—Flour, 2 lbs.; butter, 8 ozs.; sugar, 8 ozs.; milk, 1 pt.; raise with yeast.

18. **Shrewsbury.**—Flour, 1 lb.; butter, 1 lb.; sugar, ¾ lb.; rosewater, etc.

19. **Training.**—Flour, 3 lbs.; butter ¾ lb.; sugar ¾ lbs.; cinnamon, nutmeg.

20. **Nut Cake.**—Flour, 7 lbs.; butter, ¾ lb.; sugar, 2 lbs.; eggs, 7; cinnamon, wet with milk, raise with yeast or wet and raise with sour milk and saleratus.

21. **Short Cake.**—Flour, 5 lbs.; butter, 8 ozs.; sugar, ¾ lb.; eggs, 8; rosewater and nutmeg.

22. **Cymbals.**—Flour, 2 lbs.; butter, 8 ozs.; sugar, ½ lb.; eggs, 6; rosewater and a little spice.

23. **Burk Cake.**—Flour, 5 lbs.; butter, 8 ozs.; sugar, ¾ lb.; milk, 1 pt.; eggs, 9; rosewater, raise with yeast.

24. **Jumbles.**—Flour, 5 lbs.; butter, 1 lb.; sugar, 2 lbs.; eggs, 6; roll out in loaf sugar.

25. **Ginger Bread.**—Flour, 1 lb.; butter, ½ lb.; sugar, ½ lb.; eggs, 3; yolks only; ginger to suit.

26. **Wonders.**—Flour, 2 lbs.; butter, ½ lb.; sugar, ½ lb.; eggs, 10; cinnamon.

27. **Cookies.**—Flour, 3 lbs.; butter, ¾ lb.; sugar, ¾ lb.; eggs, 3, or without eggs; wet up, raise with saleratus and sour milk.

28. **York Biscuit.**—Flour, 3 lbs.; butter, ½ lb.; sugar, ¾ lb.; wet up and raise with sour milk and saleratus.

29. **Common.**—Flour, 12 lbs.; butter, 3 lbs.; sugar, 3 lbs.; milk, 2 qts.; yeast, spice to taste.

30. **Loaf.**—Flour, 9 qts.; butter, 3 lbs.; sugar, 4 lbs.; milk, 1 gal.; wine, 1 pt.; yeast, 1 pt.

31. **Molasses Cake.**—Molasses, 1½ cups; saleratus, 1 teaspoon; sour milk, 2 cups; 2 eggs; butter, lard or pork gravy; what you would take up on a spoon; if you use lard add a little salt.

Mix all by beating a minute or two with a spoon, dissolving the saleratus in the milk; then stir in flour to give the consistence of soft-cake, and put directly into a hot oven, being careful not to dry them up by over-baking, as it is a soft, moist cake that we are after.

32. **Marbled Cake.**—Those having any curiosity to gratify upon their own part or on the part of friends will be highly pleased with the contrast seen when they take a piece of cake made in two parts, dark and light, as follows:

Light Part.—White sugar, 1½ cups; butter, ½ cup; sweet milk, ½ cup; soda, ½ teaspoon; cream of tartar, 1 teaspoon; whites of 4 eggs; flour, 2½ cups; beaten and mixed as "Gold Cake."

Dark Part.—Brown sugar, 1 cup; molasses, ½ cup; butter, ½ cup; sour milk, ½ cup; soda, ½ teaspoon; cream of tartar, 1 teaspoon; flour, 2½ cups; yolks of 4 eggs; cloves, allspice, cinnamon and nutmeg, ground, of each, ½ tablespoon; beat and mixed as "Gold Cake."

Directions.—When each part is ready, drop a spoon of dark, then a spoon of light, over the bottom of the dish in which it is to be baked, and so proceed to fill up the pan, dropping the light upon the dark as you continue with the different layers.

33. **Silver Cake.**—Whites of 1 doz. eggs; flour, 5 cups; white sugar and butter, of each 1 cup; cream or sweet milk, 1 cup; cream of tartar, 1 teaspoon; soda, ½ teaspoon; beat and mix as the "Gold Cake." Bake in a deep pan.

34. **Gold Cake.**— Yolks of 1 doz. eggs; flour, 5 cups; white sugar, 3 cups; butter, 1 cup; cream or sweet milk, 1½ cups; soda, ½ teaspoon; cream of tartar, 1 teaspoon. Bake in a deep loaf pan.

Beat the eggs with the sugar, having the butter softened by the fire; then stir it in; put the soda and cream of tartar into the cream or milk, stirring up and mixing all together; then sift and stir in the flour.

The gold and silver cakes dropped as directed in the "Marbled Cake" gives you still another variety.

35. **Bride Cake.**—Presuming that this work may fall into the hands of some persons who may occasionally have a wedding among them, it would be imperfect without a "wedding cake," and as I have lately had an opportunity to test this one upon such an occasion in my own family, I can bear testimony, so can the printer, to its adaptation for all similar displays.

Take butter, 1½ lbs.; sugar, 1¾ lbs., half of which is to be Orleans sugar; eggs well beaten, 2 lbs.; raisins, 4 lbs.; having the seeds taken out, and chopped; English currants having the grit picked out and nicely washed, 5 lbs.; citron, cut fine, 2 lbs.; sifted flour, 2 lbs.; nutmegs, 2 in number, and mace as much in bulk; alcohol, 1 gill to ½ pt., in which a dozen or 15 drops of oil of lemon have been put.

When ready to make your cake, weigh your butter and cut it in pieces, and put it where it will soften, but not melt. Next stir the butter to a cream, and then add the sugar and work till white. Next beat the yolks of the eggs and put them to the sugar and butter. Meanwhile another person should beat the whites to a stiff froth and put them in. Then add the spices and flour, and last of all the fruit, except the citron, which is to be put in about three layers, the bottom layer about 1 inch from the bottom, and the top one an inch from the top, and the other in the middle, smoothing the top of the cake by dipping a spoon or two of water upon it for that purpose.

The pan in which it is baked should be about 13 inches across the top and 5½ or 6 inches deep, without scallops, and two 3-quart pans also, which it will fill; and they will require to be slowly baked about 3 to 4 hours. But it is impossible to give definite rules as to the time required in baking cake. Try whether the cake is done by piercing it with a broom splinter, and if nothing adheres it is done.

Butter the cake pans well, or if the pans are lined with buttered white paper the cake will be less liable to burn. Moving cakes while baking tends to make them heavy.

The price of a large "Bride Cake" like this would be about twelve dollars, and the cost of making it would be about three dollars only, with your two small ones, which would cost as much to buy them as it does to make the whole three.

The foregoing was written and printed over a year ago. The daughter came home and took dinner with us one year from the marriage, and her mother set on some of the cake as nice and moist as when baked.

36.—**Fruit Cake.**—As side accomplishments to the "Bride Cake" you will require several "Fruit Cakes," which are to be made as follows:

Butter, sugar, English currants, eggs and flour, of each 5 lbs.; mix as in the "Bride Cake."

Bake in about six cakes, which would cost from one dollar and fifty cents to two dollars apiece if bought for the occasion.

37. **Frosting or Icing for Cakes.**—The whites of 8 eggs beat to a perfect froth and stiff; pulverized white sugar, 2 lbs.; starch, 1 tablespoon; pulverized gum arabic, ½ oz.; the juice of 1 lemon.

Sift the sugar, starch and gum arabic into the beaten egg, and stir well and long. When the cake is cold lay on a coat of the frosting; it is best not to take much pains in putting on the first coat, as little bits of the cake will mix up with it, and give the frosting a yellow appearance; but on the next day make more frosting the same as the first, and apply a second coat, and it will be white, clear and beautiful. And by dipping the knife into cold water as applying, you can smooth the frosting very nicely.

38. **Excellent Crackers.**—Butter, 1 cup; salt, 1 teaspoon; flour, 2 qts.

Rub thoroughly together with the hand, and wet up with cold water; beat well and beat in flour to make quite brittle and hard; then pinch off the pieces and roll out each cracker by itself if you wish them to resemble bakers' crackers.

39. **Sugar Crackers.**—Flour, 4 lbs.; loaf sugar and butter, of each, ½ lb.; water 1½ pts.; make as above.

40. **Naples Biscuit.**—White sugar, eggs and flour, of each 1 lb.

If properly pulverized, sifted, beat, mixed and baked the size of Boston crackers, you will say it is nice indeed.

41. **Buckweat Short Cake.**—Take 3 or 4 teacups of nice sour milk, 1 teaspoon of soda saleratus dissolved in the milk; if the milk is very sour you must use saleratus in proportion with a little salt; mix up a dough with buckwheat flour thicker than you would mix the same for griddle cakes, say quite stiff; put into a buttered tin and put directly into the stove oven and bake about 30 minutes, or as you would a short cake from common flour.

It takes the place of the griddle cake, also of the short cake, in every sense of the word; nice with meat, butter, honey, molasses, etc. No shortening is used and no need of setting your dish of batter over night, for a drunken husband to set his foot in. Wet the top a little and warm it up at next meal, if any is left. It is just as good as when first made, while griddle cakes have to be thrown away. It is also very good cold.

Was the beauty of this cake known to the majority of persons throughout the country generally, buckwheat would become as staple an article of commerce as the common wheat. Do not fail to give it a trial. Some persons in trying it have not had good luck the first time; they have failed from the milk's being too sour for the amount of saleratus used or from making the dough too thin. I think I can say we have made it hundreds of times with success, as I could eat it while dyspeptic, when I could eat no other warm bread.

42. **Yeast Cake.**—Good lively yeast, 1 pt.; rye or wheat flour to form a thick batter; salt, 1 teaspoon; stir in and set to rise; when risen, stir in Indian meal until it will roll out good.

When again risen, roll out very thin; cut them into cakes and dry in the shade; if the weather is the least damp, by the fire or stove. If dried in the sun they will ferment.

To use: Dissolve one in a little warm water, and stir in a couple of tablespoons of flour; set near the fire, and when light, mix into the bread. If made perfectly dry, they will keep for six months.

BREADS.—Yankee Brown Bread.—For each good sized loaf being made, take 1½ pts. corn meal, and pour boiling water upon it, to scald it properly; let stand until only blood warm, then put 1 qt. of rye flour upon the meal, and pour in a good bowl of emptyings, with a little saleratus dissolved in a gill of water, kneading in more flour, to make of the consistence of common bread. If you raise it with yeast, put a little salt in the meal, but if you raise it with salt risings or emptyings, which I prefer, no more salt is needed.

Form into loaves, and let them set an hour and a half or until light; in a cool place in summer and on the hearth or under the stove in winter; then bake about two hours. Make the dough fully as stiff as for wheat bread, or a little harder, for if made too soft it does not rise good. The old style was to use only one-third rye flour, but it does not wear if made that way; or, in other words, most persons get tired of it when mostly corn meal, but I never do when mostly rye flour.

Let all persons bear in mind that bread should never be eaten the day on which it is baked, and positively must this be observed by dyspeptics. Hotels never ought to be without this bread nor families who care for health.

2. **Graham Bread.**—I find in Zion's Herald, of Boston, edited by Rev. E. O. Haven, formerly a professor in the university at this city, a few remarks upon the "Different Kinds of Bread," including graham, which so fully explains the philosophy and true principles of bread-making that I give them an insertion for the benefit of bread-makers. It says:

"Rice flour added to wheat flour enables it to take up an increased quantity of water." (See the "New French Method of Making Bread.") "Boiled and mashed potatoes mixed with the dough, cause the bread to retain moisture, and prevent it from drying and crumbling. Rye makes a dark-colored bread, but it is capable of being fermented and raised in the same manner as wheat. It retains its freshness and moisture longer than wheat. An admixture of rye flour with that of wheat decidedly improves the latter in this respect. Indian corn bread is much used in this country. Mixed with wheat and rye a dough is produced capable of fermentation, but pure maize meal cannot be fermented so as to form a light bread. Its gluten lacks the tenacious quality necessary to produce the regular cell structure. It is most commonly used in the form of cakes, made to a certain degree light by eggs or sour milk and saleratus and is generally eaten warm. Indian corn is ground into meal of various degrees of coarseness, but is never made so fine as wheaten flour. Bread or cakes from maize require a considerably longer time to be acted upon by heat in the baking process than wheat or rye. If ground wheat be unbolted—that is, if its bran be not separated—wheat meal or graham flour results, from which graham or dyspepsia bread is produced. It is made in the same general way as other wheaten bread, but requires a little peculiar management." Upon this point Mr. Graham remarks:

"The wheat meal, and especially if it is ground coarsely, swells considerably in the dough, and therefore the dough should not at first be made quite so stiff as that made of superfine flour; and when it is raised, if it is found too soft to mould well, a little more meal may be added. It should be remarked that dough made of wheat meal will take on the acetous fermentation, or become sour sooner than that made of fine flour. It requires a hotter oven, and to be baked longer, but must not stand so long after being mixed before baking, as that made from flour."

3. **Brown Bread Biscuit.**—Take corn meal, 2 qts.; rye flour,

3 pts.; wheat flour, 1 pt.; molasses, 1 tablespoon; yeast, 3 tablespoons; having soda, 1 teaspoon, mixed with it.

Knead over night for breakfast. If persons will eat warm bread, this or buckwheat short-cake should be the only kinds eaten.

4. **Dyspeptics' Biscuit and Coffee.**—Take graham flour (wheat coarsely ground, without bolting), 2 qts.; corn meal sifted, 1 qt.; butter, ½ cup; molasses, 1 cup; sour milk to wet it up with saleratus as for biscuit.

Roll out and cut with a teacup and bake as other biscuit; and when cold they are just the thing for dyspeptics. And if the flour was sifted none would refuse to eat them.

For the Coffee.—Continue the baking of the above biscuit in a slow oven for 6 or 7 hours, or until they are browned through like coffee.

Directions.—One biscuit boiled ¾ of an hour will be plenty for 2 or 3 cups of coffee, and 2 for 6 persons; serve with cream and sugar as other coffee.

Dyspeptics should chew very fine and slowly, not drinking until the meal is over; then sip the coffee at their leisure, not more than one cup, however. This will be found very nice for common use, say with one-eighth coffee added; hardly any would distinguish the difference between it and that made from coffee alone. The plan of buying ground coffee is bad; much of it is undoubtedly mixed with peas, which you can raise for less than 15 or 20 cents a pound and mix for yourself.

5. **London Baker's Superior Loaf Bread.**—The Michigan Farmer gives us the following. Any one can see that it contains sound sense:

"To make a half peck loaf, take ¾ lb. of well boiled mealy potatoes, mash them through a fine cullender or coarse sieve; add ⅛ pt. of yeast or ¾ oz. of German dried yeast, and 1¾ pts. of lukewarm water (88 deg. Fahr.), together with ¾ lb. of flour, to render the mixture the consistence of thin water; this mixture is to be set aside to ferment; if set in a warm place it will rise in less than 2 hours, when it resembles yeast, except in color. The sponge so made is then to be mixed with 1 pt. of water, nearly blood warm—viz., 92 deg. Fahr.—and poured into a half peck of flour, which has previously had 1¼ ozs. of salt mixed into it. The whole should then be kneaded into dough and allowed to rise in a warm place for 2 hours, when it should be kneaded into loaves and baked."

The object of adding the mashed potatoes is to increase the amount of fermentation in the sponge, which it does to a very remarkable degree, and consequently renders the bread lighter and better. The potatoes will also keep the bread moist.

6. **Old Bachelor's Bread, Biscuit or Pie-Crust.**—Flour, 1 qt.; cream of tartar, 2 teaspoons; soda, ¾ teaspoons; sweet milk to wet up the flour to the consistence of biscuit dough.

Rub the flour and cream of tartar well together; dissolve the soda in the milk, wetting up the flour with it, and bake immediately. If you have no milk, use water in its place, adding a spoon of lard to obtain the same richness. It does well for pie-crust where you cannot keep up sour milk.

7. **New French Method of Making Bread.**—Take rice, ¾ lb.; tie it up in a thick linen bag, giving ample room for it to swell; boil it from 3 to 4 hours or until it becomes a perfect paste; mix this while warm with 7 lbs. of flour, adding the usual quantities of yeast and salt; allow the dough to work a proper time near the fire, then divide into loaves. Dust them in and knead vigorously.

This quantity of flour and rice makes about 13½ lbs. of bread, which will keep moist much longer than without the rice. It was tested at the London Polytechnic Institute, after having been made public in France, with the above results.

8. **Baking Powders, for Biscuit without Shortening.**—Bicarbonate of soda, 4 ozs.; cream of tartar, 8 ozs., and properly dry them and thoroughly mix. It should be kept in well corked bottles to prevent dampness which neutralizes the acid.

Use about 3 teaspoons to each quart of flour being baked; mix with milk, if you have it, if not, wet up with cold water and put directly into the oven to bake.

PIES.—Lemon Pie, Exra Nice.—One lemon; water, 1 cup; brown sugar, 1 cup; flour, 2 tablespoons; 5 eggs; white sugar, 2 tablespoons.

Grate the rind from the lemon, squeeze out the juice and chop up the balance very fine; put all together and add the water, brown sugar and flour, working the mass into a smooth paste; beat the eggs and mix with the paste, saving the whites of two of them; make two pies, baking with no top crust; while these are baking beat the whites of the two eggs, saved for that purpose, to a stiff froth and stir in the white sugar; when the pies are done spread this frosting evenly over them and set again in the oven and brown slightly.

1. **Pie-Crust Glaze.**—In making any pie which has a juicy mixture, the juice soaks into the crust, making it soggy and unfit to eat; to prevent this:

Beat an egg well, and with a brush or bit of cloth wet the crust of the pie with the beaten egg just before you put in the pie mixture.

For pies which have a top crust also, wet the top with the same before baking, which gives it a beautiful yellow brown. It gives beauty also to biscuit, ginger cakes, and is just the thing for rusk, by putting in a little sugar.

3. **Apple Pie Which Is Digestible.**—Instead of mixing up your crust with water and lard, or butter, making it very rich, with shortening, as customary for apple pies:

Mix it up every way just as you would for biscuit, using sour milk and saleratus, with a little lard or butter only; mix the dough quite stiff, roll out rather thin, lay it upon your tin, or plate; and having ripe apples sliced or chopped nicely and laid on, rather thick, and sugar according to the acidity of the apples, then a top crust, and bake well, putting the egg upon the crusts, as mentioned in the "Pie Crust Glaze," and you have got a pie that is fit to eat.

But when you make the rich crust and cook the apples and put them on, it soaks the crust, which does not bake, and no stomach can digest it, while our way gives you a nice light crust and does not take half the shortening of the other plan; yet perhaps nothing is saved pecuniarily, as butter goes as finely with the biscuit crust pies, when hot, as it does with biscuit; but the pie is digestible, and when it is cold does not taste bad to cut it up on your plate with plenty of sweetened cream.

4. **Apple Custard Pie—The Nicest Pie Ever Eaten.**—Peel sour apples and stew until soft and not much water left in them; then rub them through a cullender; beat 3 eggs for each pie to be baked; and put in at the rate of 1 cup of butter and 1 of sugar for 3 pies; season with nutmeg.

My wife has more recently made them with only 1 egg to each pie, with only half of a cup of butter and sugar each to 4 or 5 pies; but the amount of sugar must be governed somewhat by the acidity of the apples.

Bake as pumpkin pies, which they resemble in appearance; and between them and apple pies in taste; very nice indeed. We find them equally nice with dried apples by making them a little more juicy.

If a frosting was put upon them, as in the "Lemon Pie," then returned, for a few moments, to the oven, the appearance at least would be improved.

5. **Apple Custard, Very Nice.**—Take tart apples that are quite juicy, and stew and rub them, as in the recipe above, and to 1 pt. of the apple beat 4 eggs and put in with 1 tablespoon of sugar, 1 of butter and ½ of a grated nutmeg.

Bake as other custards. It is excellent, and makes a good substitute for butter, apple butter, etc.

6. **Paste for Tarts.**—Loaf sugar, flour and butter, equal weights of each; mix thoroughly by beating with a rolling pin for half an hour; folding up and beating again and again.

When properly mixed, pinch off small pieces and roll out each crust by itself, which causes them to dish so as to hold the tart mixture. And if you will have a short pie-crust this is the plan to make it.

PUDDINGS.—Biscuit Pudding, Without Re-Baking.—Take water, 1 qt.; sugar, ¼ lb.; butter, the size of a hen's egg; flour, 4 tablespoons; nutmeg, grated, ½ of one.

Mix the flour with just sufficient cold water to rub up all the lumps while the balance of the water is heating; mix all, and split the biscuit once or twice, and put into this gravy while it is hot, and keep hot until used at table. It uses up cold biscuit and I prefer it to richer puddings. It is indeed worth a trial. This makes a nice dip gravy also for other puddings.

2. **Old English Christmas Plum Pudding.**—The Harrisburg

Telegraph furnishes its readers with a recipe for the real "Old English Christmas Plum Pudding." After having given this pudding a fair test, I am willing to indorse every word of it, and wish for the holiday to come oftener than once a year:

"To make what is called a pound pudding, take of raisins, well stoned, but not chopped; currants thoroughly washed, 1 lb. each; chop suet, 1 lb., very finely, and mix with them; add ¼ lb. of flour or bread very finely crumpled; 3 ozs. of sugar, 1½ ozs. of grated lemon peel, a blade of mace, ½ of a small nutmeg, 1 teaspoon of ginger, ½ doz. eggs, well beaten; work it well together, put in a cloth, tie it firmly, allowing room to swell; put it into boiling water and boil not less than two hours. It should not be suffered to stop boiling.

The cloth when about to be used should be dipped into boiling water, squeezed dry and floured; and when the pudding is done have a pan of cold water ready, and dip it in for a moment, as soon as it comes out of the pot, which prevents the pudding from sticking to the cloth. For a dip gravy for this or other puddings see the "Biscuit Pudding, Without Re-Baking," or "Spreading Sauce for Puddings."

3. **Indian Pudding, to Bake.**—Nice sweet milk, 1 qt.; butter, 1 oz.; 4 eggs, well beaten; Indian meal, 1 teacup; raisins, ½ lb.; sugar, ¼ lb.

Scald the milk and stir in the meal while boiling; then let it stand until only blood-warm, and stir all well together and bake about one and a half hours. Eaten with sweetened cream or either of the pudding sauces mentioned in the "Christmas Pudding."

4. **Indian Pudding, to Boil.**—Indian meal, 1 qt.; with a little salt; 6 eggs; sour milk, 1 cup; saleratus, 1 teaspoon; raisins, 1 lb.

Scald the meal, having the salt in it; when cool stir in the beaten eggs; dissolve the saleratus in the milk and stir in also; then the raisins; English currants, dried currants or dried berries of any kind answer every purpose, and are in fact very nice in place of the raisins; boil about one and a half hours; eaten with sweetened cream or any of the pudding sauces; any pudding to be boiled must not be put into the water until it boils, and taken out as soon as done, or they become soggy and unfit to eat.

5. **Quick Indian Pudding.**—Take 1½ cups of sour milk, 2 eggs well beaten; 1 small teaspoon of saleratus; dissolved in the milk; then sift in dry cornmeal and stir to the consistence of corn bread; then stir in ½ lb. of any of the fruits mentioned above; or, if you have no fruit, it is quite nice without.

Tie up and boil one hour; sweetened cream with a little nutmeg makes a nice sauce. As I have just eaten of this for my dinner, I throw it in extra, for it is worthy.

6. **Flour Pudding, to Boil.**—When persons have plenty of dried apples or peaches, and not much of the smaller fruits, or desire to change from them in puddings:

Take wheat flour sufficient to make a good pan of biscuit, and mix it up as for biscuit, with sour milk, saleratus and a little butter or lard; roll out rather thicker than for pie-crust; now having your apples or peaches nicely stewed, wet the crust over with the "Pie-Crust Glaze;" then spread a layer of the fruit upon it, adding a little sugar, as it lies upon the table; and if you choose scatter over them a handful of raisins, or any other of the dried fruits mentioned; roll up the whole together and boil 1 hour.

Eaten with any sauce which you may prefer, but the corn-meal puddings are much the most healthy, and I prefer their taste to those made from flour.

7. **Potato Pudding.**—Rub through a cullender 6 large or 12 middle sized potatoes; beat 4 eggs; mix with 1 pt. of good milk; stir in the potatoes, sugar and seasoning to taste; butter the dish; bake ½ hour.

This recipe is simple and economical, as it is made of what is wasted in many families, namely, cold potatoes; which may be kept two or three days, until a sufficient quantity is collected. To be eaten with butter.

8. **Green Corn Pudding.**—Green corn, raw, 2 doz. ears; sweet milk, 3 to 4 qts.; 6 eggs; sugar, 1 to 2 cups. Salt to suit to taste.

Split the kernels lengthwise of the ear with a sharp knife; then with a case knife scrape the corn from the cob, which leaves the hulls on the cob; mix it with the milk and other articles, and bake from 2 to 3 hours. To be eaten with butter and sugar.

9. **Steamed Pudding.**—Two eggs; sugar, 1 cup; sour milk, 1 cup; saleratus, ½ teaspoon; a little salt; dried whortleberries, currants, raisins or other fruit, 1 cup; flour.

Beat the eggs and stir in the sugar; dissolve the saleratus in the milk and mix in also the fruit and salt; then thicken with flour, rather thicker than for cake; put into a 2-quart pan and set in the steamer and steam an hour and a half; and I think it will crack open on the back; if not, try again. It is worth the trouble, especially if you have plenty of sweetened cream.

10. **Spreading Sauce, for Puddings.**—Butter, 4 ozs.; sugar, 6 ozs.; 1 nutmeg.

Grate the nutmeg and rub all together; these are about the proper proportions, but more or less can be made, as desired, and more or less nutmeg can also be used; or any other flavoring in their place. This sauce is nice on baked puddings, hot or cold, and to tell it all it is not bad on bread. See the "Biscuit Pudding" for dip sauces.

DOMESTIC DISHES.—Green Corn Omelet.—Green corn boiled, 1 doz. ears; 5 eggs; salt and pepper to suit the taste.

Remove the corn from the cob, as mentioned in the "Green Corn Pudding." The splitting allows the escape of the pulp, while the hull is held by the cob; season, form into small cakes and fry to a nice brown, and you have a very nice omelet.

2. **APPLES.—To Bake—Steamboat Style—Better Than Preserves.**—Take moderately sour apples, when ripe, and with a pocketknife cut out the stem and flower end also, so as to remove the skin from these cup-shaped cavities; wash them and

place them in a dripping pan; now fill these cavities with brown sugar and pretty freely between them also with sugar; then lay on a few lumps of butter over the sugar; place them thus arranged into the oven when you begin to heat up the stove for breakfast or dinner, and keep them in until perfectly baked through and soft.

Take them up on plates while hot by means of a spoon and dip the gravy arising from the apple juice, sugar and butter over them; should any of them be left after the meal is over, set them by until the next meal, when they may be placed in the stove oven until hot, and they will have all the beauty of the first baking. Or perhaps some persons may prefer them fried, as follows:

3. **Fried Apples—Extra Nice.**—Take any nice sour cooking apples, and after wiping them cut into slices about one-fourth of an inch thick; have a frying-pan ready in which there is a small amount of lard, say ½ or ¾ of an inch in depth. The lard must be hot before the slices of apples are put in. Let one side of them fry until brown; then turn and put a small quantity of sugar on the browned side of each slice. By the time the other side is browned the sugar will be melted and spread over the whole surface.

Serve them up hot, and you will have a dish good enough for kings and queens or any poor man's breakfast, and I think that even the President would not refuse a few slices, if properly cooked. There is but little choice between frying and baking by these plans; either one is very nice.

4. **Apple Fritters.**—Sour milk, 1 pt.; saleratus, 1 teaspoon; flour to make a batter not very stiff; 6 apples, pared and cored; 3 eggs.

Dissolve the saleratus in the milk; beat the eggs and put in; then the flour to make a soft batter; chop the apples to about the size of small peas, and mix them well in the batter. Fry them in lard, as you would doughnuts. Eaten with butter and sugar.

5. **Apple Merange—An Excellent Substitute for Pie or Pudding.**—First, take a deep dish and put a bottom crust into it, as for a pie; have nice sour apples, pared, sliced and stewed, sweetening slightly; place a layer of the stewed apple upon the crust, say about half an inch in thickness; then put on a layer of nice bread, spread with butter as for eating; then another layer of the apple; now place in the oven and bake as a pudding or pie; when done have the whites of eggs beaten and mixed with a little loaf or other white sugar, say 2 eggs for a 2-quart dish; place this upon the merange and return it to the oven for a few minutes, to brown the egg mixture, or frosting. Serve with sugar dissolved in a little water, adding a little butter with nutmeg or lemon, as desired, if preferred.

6. **Bread, to Fry—Better than Toast.**—Take bread that is dry; the dryer the better, so it is not mouldy; first dip it rather quickly into cold water, then into eggs which are well beat, having a little salt in them; then immediately fry for a short time in hot lard until the surface is a pretty yellow or light brown, according to the heat of the lard.

I have never eaten bread cooked in any form which suits me as well as this. But the following is very nice:

7. **Toast—German Style.**—Bakers' bread, 1 loaf, cut into slices of half an inch in thickness; milk, 1 qt.; 3 eggs, and a little salt; beat the eggs and mix them with the milk, and flavor as for custard, not cooking it, however. Dip the sliced bread into the mixture occasionally until it is all absorbed; then fry the pieces upon a buttered griddle. Serve for dinner with sugar syrup, flavored with lemon.

This is the German style of making toast; but is quite good enough for an American. And I have no doube that home-made bread will answer all purposes; ours does, certainly.

8. **Backwoods Preserves.**—Moderately boil a pint of molasses from 5 to 20 minutes, according to its consistency; then add 3 eggs, thoroughly beaten, hastily stirring them in, and continue to boil a few minutes longer; then season with a nutmeg or lemon.

Do not fail to give it a trial.

9. **French Honey.**—White sugar, 1 lb.; 6 eggs, leaving out the whites of 2; the juice of 3 or 4 lemons and the grated rind of 2, and ¼ lb. of butter. Stir over a slow fire until it is about the consistency of honey.

This and the last will be found to come much nearer what they represent than the Yankee's "wooden nutmegs" did upon trial.

10. **Muffins.**—To each quart of sweet milk add 2 eggs well beaten; a lump of butter half the size of an agg, and flour enough to make a stiff batter. Stir in ½ pt. of yeast; let them stand until perfectly light, and then bake on a griddle in tin rings, made for that purpose.

These are merely strips of tin, ¾ of an inch wide, made into rings from 2½ to 3 inches in diameter, without bottom; the ring being simply placed on a griddle and the batter poured in to fill it.

11. **Mock Oysters.**—Six nice, plump ears of sweet corn, uncooked; grate from the cob; beat 1 egg, stirring into it flour and milk, of each 1 tablespoon; season with a little salt and pepper. Put about a teaspoon of butter into a suitable pan for frying, having mixed in the corn also, drop the mixture into the hot butter, one spoon of it in a place, turning them so as to fry brown. Serve hot, for breakfast.

Whether they imitate oysters or not, no one need regret giving them a trial.

12. **Fruit Jams, Jellies and Preserves.**—The difference between common preserves, jellies and jams is this: Preserves are made by taking fruit and sugar, pound for pound, and simply cooking them together until the fruit is done.

13. **Jellies** are made by squeezing and straining out the juice only of the fruit; then taking a pound of sugar for a pound of juice, and cooking until it jells, which is told by taking out a little upon a cold plate.

14. **Jams** are made by weighing the whole fruit, washing, slicing and putting in sufficient water to cook it well; then

when cool, rubbing it through a fine sieve and with this pulp putting in as much sugar as there was of the fruit only, and cooking it very carefully until the weight of the jam is the same as the fruit and added sugar; the water, you see, is all gone; and this is easily told by having previously weighed the kettle in which you are cooking it. The jam, if nicely done, contains more of the fruit flavor than the jell, and is as valuable as the jell to put into water as a drink for invalids; and better for flavoring syrups for soda fountains, etc. Strawberries, raspberries, blackberries, peaches and pineapples make very nice jams for flavoring syrups. Much of the flavor of the fruit resides in the skin pits, etc. And jams made in this way from the blackberry are good for sore mouth, diarrhoea, dysentery, etc.

15. **Fruit Extracts.**—Best alcohol, 1 pt.; oil of lemon, 1 oz.; peel of 2 lemons.

Break the peels, and put in with the others for a few days; then remove them, and you will have just what you desire, for a trifling cost, compared with the 25 cent bottles, which are so prominently set out as the nicest thing in the world.

This rule holds goods for all fruit oils; but for fruits, such as peaches, pineapples, strawberries, raspberries, blackberries, etc., you will take alcohol and water equal parts, and put upon them sufficient to handsomely cover; and in a few days you have the flavor and juices of the fruit, upon the principle of making "Bounce," which most men know more or less about. If persons will act for themselves, using common sense, working from known facts like these, they will not need to run after every new-fangled thing which is seen blazing forth in almost every advertisement of the day.

Vanilla, nutmeg, mace, cinnamon, etc., are made by cutting up the vanilla bean or bruising the nutmegs, cinnamon, etc., and putting about two ounces to each pint of pure spirit, or reduced alcohol, frequently shaking for about two weeks and filtering or pouring off very carefully; if for sale, however, they must be filtered; for coloring any of the extracts see the "Essences" and "Syrups." For cakes and pies, however, it is just as well to pulverize nutmegs, mace, cinnamon, etc., and use the powder, for the quantity required is so small that it will never be seen in the cake or pie.

MEDICATED WATERS.—Rose Water.—Take carbonate of magnesia, ⅛ oz.; oil of rose, 30 drops; drop the oil upon the magnesia and rub it together; then add, rubbing all the time, of distilled water, if you can get it, 1 qt.; if not, take the purest rain or snow water; a porcelain mortar is best, but a bowl does very well. Then filter through filtering paper.

The magnesia breaks up the oil globules and enables the water to take it up, and the filtering removes the magnesia.

2. **Cinnamon Water.**—Use the same amount of oil of magnesia and water and treat the same as the "Rose Water."

3. **Peppermint, Spearmint and Pennyroyal Waters** are made the same as above.

4. **Camphor Water.**—To make camphor water you must first

put on a few drops of alcohol, say 40 to 50 drops, to camphor gum, ¼ oz., and rub the camphor fine, which enables you to work it up with magnesia, ½ oz.; then gradually add water, 1 qt., as mentioned in the waters above and filtered.

The rose and cinnamon waters are used for cooking, but the others for medical purposes.

Additions by the Publisher.—Chili Sauce.—One gallon tomatoes, eight onions, six green peppers chopped fine, eight tablespoonfuls of sugar, four tablespoonfuls of salt, one teaspoonful each of cinnamon, allspice, celery seed, black pepper, nutmeg, cayenne pepper, one cup of made mustard, two cups of vinegar, one clove of garlic; cook until onions and garlic are thoroughly done. Seal while hot. All spices must be ground.

Catherine Cook's Fudges.—One cup of cream, two cups of pulverized sugar, one-fourth cup of chocolate. Then stir well together and boil to a thin taffy. Remove from the fire and beat to a soft cream. Pour out on a buttered platter and cut into squares.

Swedish Crullers.—Six eggs and six tablespoonfuls of cream and flour sufficient to make a stiff paste, roll out very thin, cut into strip four inches long and one-half inch wide, give each a slight twist and fry in very hot lard until a rich, light brown, dry on paper and sprinkle with powdered sugar.

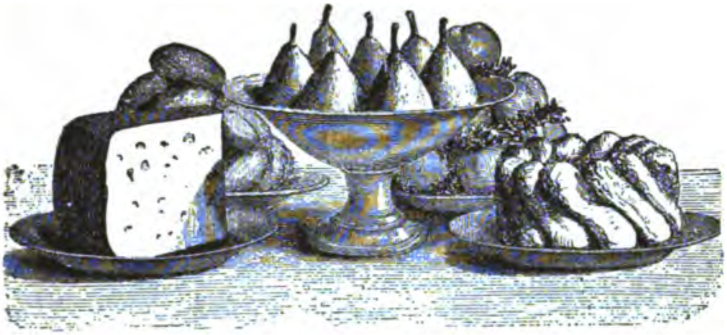
Boston Brown Bread.—One coffee cup each of rye meal, yellow corn meal, unbolted graham flour, sour milk and molasses, one teaspoonful of baking soda dissolved in half a cup of hot water, mix thoroughly and bake in half-pound baking powder tin cans 35 minutes with the lids on, and then 10 minutes with the lids off. This is an excellent bread for dyspeptics, and can be eaten when ordinary white bread is indigestible. It is made more relishable by adding seeded raisins.

Mince Meat.—Three pounds of round steak, boiled and chopped fine, 3 pounds of raisins, 1 pound currants, 1 pound of citron, ¾ of a pound of suet, 6 pounds of apples, 1½ pounds of sugar, two oranges; chop all rather fine and add cloves, nutmeg, salt and pepper to taste; moisten with half a gallon of cider when made and add more as becomes necessary.

Tomato Soup.—One quart can of tomatoes, one pint of hot water, one tablespoonful of sugar, one teaspoonful of salt, four cloves, four pepper corns. Put these to boil in a sauce pan, then melt a tablespoonful of butter in another sauce pan, add a teaspoonful of chopped onions and one of chopped parsley, let it cook 5 minutes, then add a tablespoonful of flour and turn the tomatoes into it slowly and let it simmer 10 minutes, then strain and add a little butter and serve with crotons.

Crotons.—Cut stale bread into half-inch slices, cut off the crusts and cut into strips one-half inch wide, and then cut across the strips, making square dice. Put them in the oven, stirring often until a delicate brown.

Fried Tomatoes.—Peel tomatoes and cut crosswise in large slices, salt and pepper and dip each slice into wheat flour, then into beaten egg, and fry at once in hot lard; serve hot. A cup of milk is sometimes thickened with a little flour and butter, boiled and poured over them.



CAKE RECIPES.

Angel Cake—(Excellent.)—Sift together 5 times, 1 tumbler flour and 1 teaspoonful cream tartar; beat stiff the whites of 11 eggs and stir in carefully 1 tumbler sifted pow'd sugar; add 3 teaspoonfuls vanilla ext.; add the flour, stirring quickly and lightly. Bake in an angel cake tin (not buttered) about 40 minutes in a moderate oven. When done, invert in the cake tin, resting the edges on 2 saucers to insure easy removal.

Golden Spice Cake.—Keeps well, and will use the yolks of eggs left after making angel cake. Yolks of 7 eggs and 1 whole egg; 2 cups brown sugar; 1 cup molasses; 1 cup butter; 1 large coffee cup sour milk; 1 even teaspoonful soda; 5 cups flour; 1 teaspoonful ground cloves; 2 teaspoonfuls each cinnamon and ginger; 1 nutmeg; a small pinch of salt and 1 of cayenne pepper. Beat eggs, sugar and butter to a light batter, add molasses, flour and milk. Add 2 cups of raisins if desired. Beat well and bake in a moderate oven.

Chocolate Cake (the best).—1 cup butter; 2 cups sugar; stir to a cream. Add well beaten yolks of 5 eggs; stir in 1 cup milk, and well beaten whites of 2 eggs. In 3½ cups flour sift 2 heaping teaspoonfuls baking powder, and stir all together. Bake in layers. Then beat stiff the whites of 3 eggs and melt 2 cups sugar to a very thick hot syrup; pour this slowly on the whites, beating rapidly. Add ½ cake grated chocolate and a teaspoonful vanilla extract. Stir till cool. Spread between each cake, covering the top and sides.

Cocoanut Layer Cake.—Cream together ¾ cup of butter and 2 cups sugar. Add 1 cup sweet milk. 4 eggs with whites and yolks separately beaten; stir in the yolks first; flavor with lemon and vanilla; sift in 3 cups flour, mixed with 3 heaping teaspoonfuls baking powder. Bake in layers. **Filling.**—Beat the whites of 3 eggs and 1 cup powdered sugar to a stiff froth; spread the icing on each cake, sprinkling thickly with grated cocoanut.

Almond Cake.—Use blanched sweet almonds in place of cocoanut in above recipe.

Plain Cocoanut or Almond Cake.—Frost any good cake with the same icing as for cocoanut or almond cake, and sprinkle on grated cocoanut or blanched sweet almonds.

Fig Filling for Layer Cake.—Chop fine 1 lb. figs, add ½ cup sugar and 1 cup water; cook all together till soft and smooth. Spread when cool.

Fig Cake (Very nice).—**Silver Part.**—2 cups sugar; 2-3 cup butter; scant 2-3 cup sweet milk; white of 8 eggs; 3 heaping teaspoonfuls baking powder, well sifted with 3 cups flour. Stir sugar and butter to a cream; stir in milk and flour, and lastly the whites well beaten. **Gold Part.**—Use ½ the above quantities, but yolks of eggs in place of whites; add 1 whole egg, a little alspice and cinnamon. Bake the silver part in 2 long tins. Put ½ the gold in a tin, halve some figs and lay on (floured), cover with remaining gold and bake. Put the gold between the 2 silver cakes, with frosting and frost the top.

Wedding Cake (Superior) Keeps 20 Years.—3 lbs. flour; 1 lb. butter; 1 lb. sugar; 3 lbs. stoned raisins; 2 lbs. currants; ¾ lb. blanched sweet almonds, chopped; 1 lb. citron; 12 eggs; 2 tablespoonfuls cinnamon and 1 of alspice; 1 tablespoonful cloves; 2 nutmegs; 1 wineglass each wine and brandy. Steep the spices in a coffee cupful of molasses, simmer gently 30 minutes; beat the eggs lightly; stir all together; add the fruit (floured) last; and a teaspoonful of soda dissolved in a little water. Add a little more water if too thin. Line a pan with buttered paper; put in a layer of the mixture, then one of sliced citron; repeat till pan is nearly full. Bake with steady heat 3 or 4 hours. Cool in the oven gradually. Frost it when cold.

Frosting Without Eggs.—1 cup granulated sugar, dampened with 5 large tablespoonfuls of milk; boil five minutes without stirring; set the dish in cold water; add flavoring, and beat constantly until it becomes a thick creamy frosting.

Cream Filling for Layer Cake.—1 pt. new milk; 2 eggs; 3 tablespoonfuls sifted flour; 1 cup sugar. Stir all into a little of the cold milk, boiling the remainder; then cook all together to a thick custard; flavor when cool. If desired add hickory or other nut meats chopped fine.

Rose Coloring for Frosting, Jellies, Ice Cream, Cake, Etc.—¼ oz. each cream tartar and pow'd alum; 1 oz. pow'd cochineal; 4 oz. loaf sugar and a saltspoonful soda. Boil 10 minutes in a pint of soft water. Cool and bottle for use.

Dominoes (Nice for children's or other parties).—Make a plain cake in thin sheets. Cut in shape and size of large dominoes. Frost the top and sides. When hard draw the lines and dots with a brush and melted chocolate.

Macaroons, Almond or Cocoanut.—1 lb. sugar; ¼ lb. blanched and pow'd almonds (or grated cocoanut); whites of 3 eggs. Mix; sprinkle sugar on white or light brown paper and drop the mixture thereon and bake quickly.

Sponge Drops (for party.)—Beat to a froth 3 eggs and 1 cup sugar; mix 1 teaspoonful cream tartar, ½ teaspoonful saleratus into 1 heaping coffee cup flour. Mix all together and flavor with lemon. Butter tin sheets and drop in teaspoonfuls 3 inches apart. Bake in a quick oven, watching carefully. Very nice with ice cream.

A stylish way to serve Croquettes, etc.

BREAKFAST CAKES, TEA CAKES, ETC.

Baking Powder Biscuit.—I qt. flour; butter size of an egg; 3 heaping teaspoonfuls baking powder, and 1 of salt. Make a soft dough of sweet milk (or water), cut out, bake in a quick oven.

Banana Fritters.—Make a batter of 1 cup warm sweet milk, a large teaspoonful of baking powder, sifted with 2 cups flour, 2 eggs (yolks and whites beaten separately), 1 tablespoonful sugar, and a saltspoon of salt. Stir all together. Dip slices of banana into the batter, and drop into boiling hot lard, in large spoonfuls and fry (like doughnuts) to a light brown. Sprinkle with powdered sugar or serve with sauce. Apples, peaches, sliced oranges, etc., can be used in the same way.

Berry Tea Cakes.—1 cup sugar; 2 eggs; 1½ cup milk; 1 heaping teaspoonful baking powder; piece of butter size of an egg, and flour to make stiff batter. Into this stir a pint of fresh or canned berries, without the juice; bake like muffins. Eat warm with butter.

Hominy Fritters.—1 pint hot boiled hominy; 2 eggs; ½ teaspoonful salt; 1 tablespoonful flour; 1 tablespoonful baking powder. Thin with a little cold milk; mix well and fry in deep hot fat to a light brown.

Egg Muffins.—Sift together 1 qt. of flour, 1 tablespoonful of sugar, 2 heaping teaspoonfuls baking powder; add 3 eggs, whites and yolks beaten separately, a large tablespoonful butter or cream (lard will do), 3 cups sweet milk. Mix to a thick batter; fill muffin rings 2-3 full and bake in a hot over 20 minutes.

Graham Gems.—2 cups graham flour, 1 cup wheat flour, 2 teaspoonfuls baking powder, 1 tablespoonful sugar, 1 teaspoonful salt, 1 well beaten egg. Beat well with sweet milk to a thin batter; fill hot gem pans 2-3 full and bake 20 minutes in a hot oven.

Plain Graham Gems.—2 cups graham; 2 of cold milk (or water) and a little salt. Bake in a very hot oven 40 minutes.

Turkey, trussed and stuffed, ready for the oven.

Sally Lunn.—1 qt. of flour, a piece of butter the size of an egg (melted); 3 tablespoonfuls sugar; 3 tablespoonfuls baking powder and a teaspoonful of salt. Add a tumbler of milk and 2 beaten eggs. Stir all together and make in round pans. Eat warm with butter. Break warm cakes instead of cutting, which makes it heavy.

Strawberry Shortcake.—Make dough as for baking powder biscuits, adding a little more shortening and a tablespoonful of sugar. Make 2 cakes, using ½ for each. Roll thin, size of a biscuit tin, bake in a quick oven. Lay on a platter and butter well; cover thickly with strawberries well sugared; lay on the other cake, then another layer of berries. Pour any extra juice around the cake. Serve with sweet cream. Other fruit or berries can be substituted.

Saratoga Chips.—Take large potatoes, slice thin and evenly. Drop in very cold water. Dry in a towel and drop into deep boiling hot fat. Fry to a light brown, stirring occasionally. Remove with a skimmer. Sprinkle with salt while hot.

PUDDINGS AND SAUCES.

Almond Pudding.—¾ lb. blanched sweet almonds pounded fine; 1 large spoonful rose water. Beat 6 eggs to a stiff froth with 3 spoonfuls sugar; mix with 1 qt. milk, 3 spoonfuls pounded crackers, 4 oz. melted butter, 4 oz. citron cut fine. Stir all together; bake in a pudding dish lined with pastry ½ hour in a quick oven. Serve cold.

Banana Pudding.—Put in a glass dish alternate layers of bananas and sliced cake (sponge is best). Pour over it a soft custard, flavored with wine. Beat the whites of the eggs to a stiff froth and heap over the whole. Peaches cut up and left a few hours in sugar then scalded and added when cold to a soft sweet custard makes a delicious dessert. Other fruits can be used in place of peaches or bananas.

Bird's Nest Pudding.—Core and peel 8 apples, fill the openings with sugar and a little grated nutmeg; cover and bake. Beat the yolks of 4 eggs; add 2 cups flour with 8 teaspoonfuls baking powder sifted with it. 1 pt milk, a teaspoonful salt; add the whites of the eggs, well beaten; pour over the apples and bake 1 hour in a moderate oven. Serve with sauce.

Chocolate Pudding.—1 qt. milk; ¾ cup grated chocolate. Scald together; when cool, add the yolks of 5 eggs; 1 cup of sugar, flavor with vanilla. Bake 25 minutes. Beat the whites of the eggs stiff; add 4 tablespoonfuls sugar; spread on the top and brown slightly in the oven.

Cold Berry Pudding.—Butter thin slices of bread. Put a layer of bread in a buttered dish, then a layer of hot stewed berries; sweeten to taste. Repeat the operation till full, using a covering of fruit last. It is improved by a soft frosting over the top. Serve cold with cream and sugar. Oranges, stewed prunes, peaches, etc., can be used if desired.

Delmonico Pudding—Delicate and delicious.—3 tablespoonfuls cornstarch and 6 of sugar; yolks of 5 eggs; beat the eggs light, then add the sugar and beat again till very light. Mix the starch with a little cold milk, adding a little salt, boil until thickened. Pour into the dish to be served from, and place in the oven a short time, then place on top a layer of canned peaches or other fruit; cover with a soft frosting, and bake a light brown.

French Cocoanut Pudding.—Make in the same way as the Delmonico, omitting the fruit, and adding a cup of grated cocoanut stirred in while boiling. Flavor with vanilla. When the frosting is brown moisten the [illegible] with a little more frosting and sprinkle thickly with grated cocoanut.

Peach Cobbler.—Stew juicy peaches with sugar and spices to taste. Put in a deep dish lined with a rich crust, cover the top with the crust and bake brown. When done break up the top crust into pieces and stir into the fruit. Serve with cream or cream sauce. Other fruits can be used in place of peaches.

Pineapple Pudding.—Butter a pudding dish; line the sides with slices of stale sponge or other cake; place in the dish thin slices of pineapple and strew with sugar, then more pineapple, and repeat till full; add a small teacup of water. Dip slices of cake in water and cover the fruit with them. Place over all a buttered plate, and bake slowly 2 hours.

Rhubarb Pudding.—Chop pieplant fine, put in a dish and sprinkle liberally with sugar. Make a batter of 1 cup sour milk, 3 eggs, a small piece of butter, ½ teaspoonful soda, and flour sufficient to make a thick batter. Spread over the rhubarb and bake. Turn upside down on a platter. Serve with sugar and cream. Any stewed fruit can be used in place of rhubarb.

Snow Pudding, or Floating Island.—Dissolve ½ package gelatine in 1 cup of water; add 1½ cups sugar; 1 cup boiling water; the juice of 1 lemon, then the well beaten whites of 4 eggs. Beat all together till light and frothy; put on a glass dish. Serve with a boiled custard made of 1 pt. milk, yolks of 4 eggs, 4 tablespoonfuls sugar and the grated rind of 1 lemon (grate the

yellow part only.) For Floating Island omit the gelatine; whisk the whites of the eggs to a stiff froth; add a little sugar and serve as floats on the custard, with a bit of jelly on each float.

PUDDING SAUCES.

Good Sauce for Fruit Puddings.—1 cup brown sugar; 1 cup best molasses; ½ cup butter; 1 large teaspoonful flour; juice and rind of 1 lemon; ½ a nutmeg, grated; ½ teaspoonful each of cloves and cinnamon. Stir all together, and add a cup of boiling water. Boil till clear, stirring constantly. Strain.

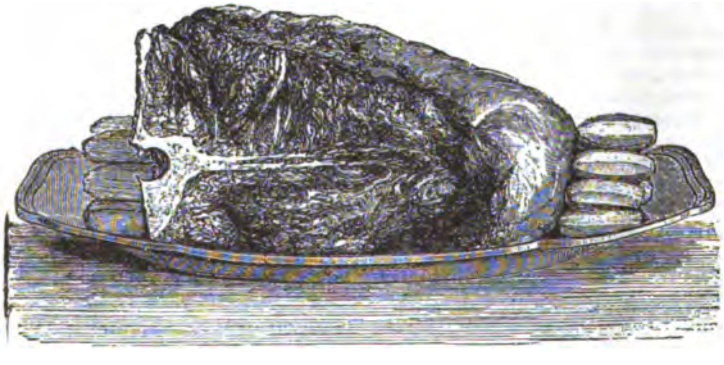
Grandmother's Sauce.—Cream together 1 cup sugar and ½ cup butter. Add 1 teaspoonful cinnamon and a well beaten egg. Stir in slowly a cup of boiling milk. Serve hot or cold.

Hard Sauce.—Cream together 1 cup sugar, ½ cup butter, add flavoring. Also very nice flavored with the juice of fruit. Or beat stiff the white of 1 egg and stir it into the sauce with a cup of ripe berries.

Lemon Sauce (Hot).—1 cup sugar; ½ cup butter; 1 beaten egg; juice and grated rind of lemon, ½ cup boiling water. Put in a basin, stir and thicken over steam. For orange sauce, vanilla, etc., substitute other flavor for the lemon. Jellies can also be used.

Rich Wine Sauce.—1 cup of butter and 2 of powdered sugar beaten to a light cream. Add ½ cup warm wine; stir 2 minutes till smooth and foamy.

Lemon Brandy for Puddings, Etc.—Don't throw away lemon peel. Slice off the yellow part and put into a bottle of brandy. Peach and plum stone meats chopped can also be treated in the same way.



MEAT SAUCES, RELISHES, ETC.

Canton Soy.—Boil soft 2 qts. seeds of the dolichos soja (a Chinese bean). In their absence use haricot or kidney beans. Add 2 qts. bruised wheat, and keep warm for a day. Add 2 qts. salt and 1 gal. water. Keep tightly closed 2 or 3 months, and press out the liquor.

Mayonaise Dressing for Salads, Etc—Powdered turmeric, 1 oz.; powdered tragacanth, 1 oz.; salt, 8 oz.; vinegar, 2 oz.; fine capsicum, ½ oz.; sugar, 1 lb.; olive oil, 8 oz. Beat together the first 8 ingredients, add 4 well beaten eggs; mix 1½ oz. mustard with the vinegar or with water to a thin cream, and after 15 minutes add the other ingredients. Mix, and beat all together; finally strain.

Mushroom Catsup.—Sprinkle the mushrooms with salt, stirring occasionaly for 3 days. Press out the juice and add to each gal. of liquor ½ oz. each bruised mustard seed and cloves, and 1 oz. each bruised allspice and black pepper. Gently simmer for an hour in a porcelain kettle, cool, strain and bottle.

Picalili (very nice).—1 peck green tomatoes; 8 onions; chop both fine. Add 1 cup salt; set over night, then drain; then take 2 qts. water and 1 of vinegar; mix all together; boil 20 minutes and drain again. Then boil with 2 qts. of vinegar, 1 lb sugar, ½ lb. white mustard seed, 2 tablespoonfuls each of ground pepper, cinnamon and ginger, 1 of cloves and 1 of allspice and ½ teaspoonful Cayenne pepper. Stir all together while boiling 15 minutes, or until tender. Seal in glass jars.

Salad Dressing. (Excellent Article.)—Mix together the yolk of an egg with 2 tablespoons olive oil; 1½ spoonfuls mustard; 1 spoonful salt; 2 spoonfuls vinegar and a little pepper. Beat the whites of the eggs to a stiff froth and lightly stir in.

Walnut Catsup.—3 pints green walnut shell juice; ¼ lb. salt; 1 oz. each of shallots, garlic, ginger and horseradish; 1 gill ess. of anchovies. Mix.

Worcestershire Sauce.—According to "The Druggist's Circular" the following is the composition of Lea & Perrins' famous condiment: Wine vinegar, 1½ gal.; walnut and mushroom catsup, each 1 gal.; Madeira wine, ½ gal.; Canton soy, ½ gal.; sugar, 2½ lbs.; salt, 19 oz.; powdered capsicum, 3 oz.; ground Pimento, coriander, allspice and chutney, 1½ oz. each; ground cloves, mace and cinnamon, ¾ oz. each; assafoetida, 6 drams dissolved in 1 pt. of brandy. Mix and set for two weeks. Boil 2 lbs. hogs liver in 1 gal. water (maintaining the quantity) 12 hours; then chop fine and mix again with the same water. Strain and add the liquor to the first mixture. The sauce improves by age.

Soyer's Table Mustard.—Said to be made: 1 pint mustard seed in 1 qt. distilled vinegar. Steep 8 days; grind into a paste and put in pots. Thrust a redhot poker into each.

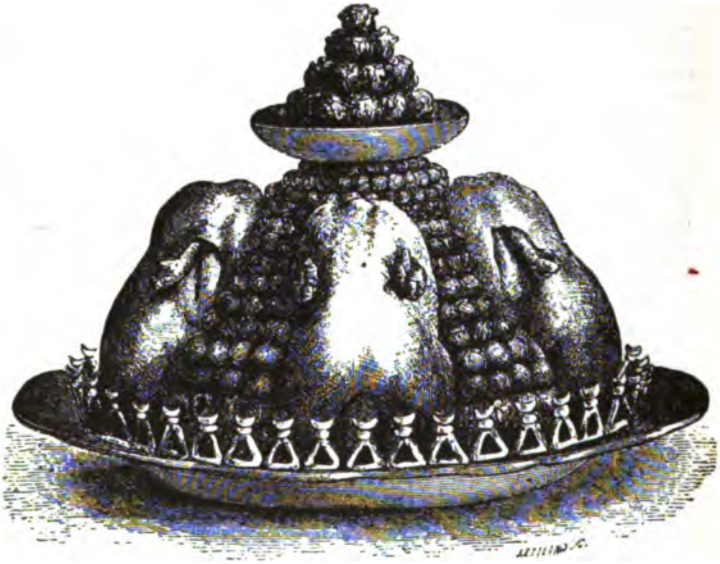
French Mustard.—1¼ lbs. salt; 1 lb. ground horseradish; a little garlic; 2 cloves; 2 gal. boiling vinegar. Macerate in a covered vessel 24 hours; strain and add enough flour of mustard to make a smooth paste.

Preservative for Meats, Poultry, Etc.—Wash in 3 teaspoonfuls salicylic acid dissolved in 1 qt. of water. This restores freshness. To keep several days, immerse in the solution for ½ hour.

USEFUL HINTS.

To Keep Milk Sweet.—A spoonful of grated horseradish in the pan will keep it for several days.

Salt Eaten With Nuts aids digestion, and neutralizes the oil in them.



Dainty method of serving roasted pigeon with garnishments.

MISCELLANEOUS DEPARTMENT.

WASHING FLUID.—Saving Half the Washboard Labor.— Sal-soda, 1 lb.; stone lime, ½ lb.; water, 5 qts.; boil a short time, stirring occasionally; then let it settle and pour off the clear fluid into a stone jug and cork for use; soak your white clothes over night in simple water; wring out and soap wristbands, collars and dirty or stained places; have your boiler half filled with water, and when at scalding heat put in one common teacup of the fluid, stir and put in your clothes, and boil for half an hour; then rub lightly through one suds only, rinsing well in the bluing water, as usual, and all is complete.

If you wish to wash on Monday, put warm suds to the clothes while breakfast is being got ready; then wring out and soap as above; will do just as well as soaking them over night, and my wife thinks better.

For each additional boiler of clothes add half a cup of the fluid only; of course, boiling in the same water through the whole washing. If more water is needed in the boiler for the last clothes, dip it from the sudsing tub. Soak your woolen and calico in the suds from which you have washed the white clothes, while hanging them out, dipping in some of the boiling water from the boiler, if necessary; then wash out the woolen and calico as usual. Of course, washing out woolen goods before you do the calico. The fluid brightens instead of fading the colors in calico.

This plan not only saves the two rubbings which women give their clothes before boiling, and more than half of the soap; does not injure the clothes, but saves their wear in two rubbings before boiling; and is a good article for removing grease from floors, doors and windows, and to remove tar or grease from the hands, etc.

I hope every lady into whose hands this recipe may fall will give it a trial, as my family have now used it over seven years, not missing only two washings. It does not rot clothes, but makes them wash full or more than one-half easier than the old way. Seven years ought to be considered a sufficient test.

The honor of this recipe is accredited to Prof. Liebig, of Germany.

I have found many women using turpentine, alcohol, ammonia, camphor gum, etc., in their washing fluids; but none of them ought ever to be used for such purposes (one woman lost the use of her arm, for six months, by using a fluid containing turpentine); the turpentine and alcohol especially, tend to open the pores of the skin, and thus making the person more liable to take cold in hanging out the clothes, as also to weaken the arm.

And here let me say, if it is possible to avoid it, never allow the woman who washes the clothes, and thus becomes warm and sweaty, to hang them out, and especially ought this to be regarded in the winter or windy weather. Many consumptions are undoubtedly brought on by these frequently repeated colds in this way. It works upon the principle that two thin shoes make one cold, two colds an attack of bronchitis, two attacks of bronchitis one consumption; the end, a coffin.

LIQUID BLUING.—For Clothes.—Most of the bluing sold is poor stuff, leaving specks in the clothes. To avoid this:

Take best Prussian-blue, pulverized, 1 oz.; oxalic acid, also pulverized, ½ oz.; soft water, 1 qt.; mix. The acid dissolves the blue and holds it evenly in the water, so that specking will never take place. One or two tablespoons of it is sufficient for a tub of water, according to the size of the tub.

Chinese blue, when it can be got, is the best, and only costs 1 shilling an ounce, with 3 cents for the acid, will give better satisfaction than 50 cents worth of the common bluing. This amount has now lasted my family over a year.

SOAPS.—Soft Soap—For Half the Expense and One-Fourth the Trouble of the Old Way.—Take white bar soap, 4 lbs., cut it fine and dissolve by heating in soft water, 4 gals.; adding sal-soda, 1 lb. When all is dissolved and well mixed it is done.

Yellow soap does very well, but Colgate's white is said to be the best. But our "White Hard Soap" is the same kind.

This soap can be made thicker or more thin by using more or less water, as you may think best after once making it. Even in common soft soap, if this amount of sal-soda is put into that number of gallons, washing will be done much easier, and the soap will more than compensate for the expense and trouble of the addition.

2. **German Erasive, or Yellow Soap.**—Tallow and sal-soda, of each, 112 lbs.; rosin, 56 lbs.; stone lime, 28 lbs.; palm oil, 8 lbs.; soft water, 28 gals.; or for small quantities, tallow and sal-soda, of each 1 lb.; rosin, 7 ozs.; stone lime, 4 ozs.; palm oil, 1 oz.; soft water, 1 qt.

Put soda, lime and water into a kettle and boil, stirring well; then let it settle and pour off the lye. In another kettle, melt the tallow, rosin and palm oil; having it hot, the lye being also boiling hot; mix all together, stirring well, and the work is done.

3. **Hard Soap, with Lard.**—Sal-soda and lard, of each 6 lbs.; stone lime, 3 lbs.; soft water, 4 gals.; dissolve the lime and soda in the water by boiling, stirring, settling and pouring off; then return to the kettle (brass or copper) and add the lard and boil until it becomes soap; then pour into a dish or moulds, and when cold cut it into bars and let it dry.

This recipe was obtained by finding an overcoat with it in the pocket, and also a piece of the soap. The man kept it with him, as it irritated his salt-rheum so much less than other soaps. It has proved valuable for washing generally; and also for shaving purposes. It would be better than half the toilet soaps sold if an ounce or two of sassafras oil was stirred into this amount; or a little of the soap might be put in a separate dish, putting in a little of the oil to correspond with the quantity of soap.

4. White Hard Soap, with Tallow.—Fresh slacked lime, sal-soda and tallow, of each 2 lbs.; dissolve the soda in 1 gal. boiling soft water; now mix in the lime, stirring occasionally for a few hours; after which let it settle, pouring off the clear liquor and boiling the tallow therein until it is all dissolved; cool it in a flat box or pan and cut into bars or cakes, as preferred.

It can be flavored with sassafras oil, as the last, by stirring it in when cool; it can be colored also if desired, as mentioned in the "Variegated Toilet Soap."

When any form of soda is used in making soap, it is necessary to use lime to give it causticity; or, in other words, to make it caustic; which gives it much greater power upon the grease by removing the carbonic acid; hence the benefit of putting lime in the bottom of a leach when making soap from common ashes.

5. Transparent Soap.—Take nice yellow bar soap, 6 lbs.; cut it thin and put into a brass, tin, or copper kettle, with alcohol, ½ gal.; heating gradually over a slow fire, stirring until all is dissolved; then add an ounce of sassafras essence and stir until well mixed; now pour into pans about 1½ inches deep, and when cold cut into square bars, the length or width of the pan, as desired.

This gives you a nice toilet soap for a trifling expense, and when fully dry it is very transparent.

6. One Hundred Pounds of Good Soap for $1.30.—Take potash, 6 lbs., 75 cents; lard, 4 lbs., 50 cents; rosin, ¼ lb., 5 cents.

Beat up the rosin, mix all together and set aside for five days; then put the whole into a 10-gal. cask of warm water and stir twice a day for ten days; at the expiration of which time you will have 100 lbs. of excellent soap.

7. Chemical Soft Soap.—J. Hamilton, an English gentleman and proprietor of the Eagle Hotel, Aurora, Ind., makes his soap for house use as follows:

Take grease, 8 lbs.; caustic soda, 8 lbs.; sal-soda, 1 lb.; melt the grease in a kettle, melt the soda in soft water, 4 gals., and pour all into a barrel holding 40 gals., and fill up with soft water and the labor is done.

When the caustic soda cannot be obtained of soap makers you will make it by taking soda ash and fresh slacked lime, of each 8 lbs.; dissolving them in the water with the sal-soda, and when settled, pouring off the clear liquid as in the "White Hard Soap with Tallow."

8. Soap without Heat.—Mr. Tomlinson, writing to Judge Buel, says:

"My wife has no trouble about soap. The grease is put into a cask and strong lye added. During the year, as the fat increases, more lye is stirred in; and occasionally stirred with a stick that is kept in it. By the time the cask is full the soap is made for use."

There is no mistake about this manner of making soap. The only object of boiling is to increase the strength of weak lye and hasten the process.

9. **Windsor, or Toilet Soap.**—Cut some new, white bar soap into thin slices, melt it over a slow fire, and scent it with oil of caraway; when perfectly dissolved, pour it into a mould and let it remain a week, then cut it into such sized squares as you may require.

10. **Variegated Toilet Soap.**—Soft water, 3 qts.; nice white bar soap, 3 lbs.; sal-soda, 2 ozs.; Chinese vermilion and Chinese blue, of each, as much as will lie on a 5-cent piece; oil of sassafras, ½ oz.

Shave the soap fine, and put it into the water as it begins to boil; when dissolved, set it from the fire; take out a cup of the soap and stir in the vermilion; take out another cup of the soap and stir in the blue; then pour in one of the cups and give two or three turns only with the stirring stick; then put in the other in the same way; and finally pour in a suitable box; and when cold it can be cut into bars; or it can be run in moulds, if desired; it will become hard in a short time, giving most excellent satisfaction. If stirred thoroughly after putting in the colors, it would be all of a mixed color; but giving it only two or three turns, leaves it in streaks most beautiful.

Soap manufacturers generally use soda in preference to wood ashes, because less troublesome; and to make it more caustic, or, in other words, to absorb the carbonic acid gas, they must put about pound for pound of recently slacked lime with soda ash, or sal-soda; dissolving by heat or stirring; or by both; using sufficient water to make the lye support a fresh laid egg, and drawing it off clear of the lime sediment. Thirteen hundred pounds of the tallow, or thereabouts, with the lye, makes one ton of white soap, and yellow soap by using 1,000 of tallow and 350 of yellow rosin for each ton, boiling with the lye until they unite; then pouring into frames, made to fit one upon another, to cool and harden; finally taking off one frame at a time, and with a wire having a handle at each end to draw it with, cut into slices, then bale and cording up as wood to dry. If wood ashes are used, plenty of lime must be put into the bottom of the leach.

TALLOW CANDLES.—For Summer Use.—Most tallow in summer is more or less soft and often quite yellow. To avoid both:

Take your tallow and put a little beeswax with it, especially if your beeswax is dark and not fit to sell; put into a suitable kettle, adding weak lye and gently boil an hour or two each day for two days, stirring and skimming well, each morning cutting it out and scraping off the bottom which is soft, adding fresh lye (be sure it is not too strong), 1 or 2 or 3 gals., according to the amount of tallow. The third morning use water in which alum and saltpetre is dissolved, at the rate of 1 lb.

of each for 30 lbs. of tallow; then simmer, stir and skim again; let cool, and you can take it off the water for use.

They may be dipped or run in moulds; for dipping allow 2 lbs. for each dozen candles.

Saltpetre and alum are said to harden lard for candles, but it can be placed among the humbugs of the day. But I will give you a plan which is a little shorter for hardening tallow. Either will work well; take your choice:

2. **Tallow—To Cleanse and Bleach.**—Dissolve alum, 5 lbs., in water, 10 gals., by boiling; and when it is all dissolved add tallow, 20 lbs.; continue the boiling for an hour, constantly stirring and skimming; when sufficiently cool to allow it strain through rough thick muslin; then set aside to harden; when taken from the water lay it by for a short time to drip.

Dip or mould, as you please, not expecting them to "run' in summer nor "crack" in winter. They will also burn very brilliantly, at which, however, you will not be surprised, when you consider the amount of filth thrown off in the cleansing.

FENCE POSTS.—To Prevent Rotting.—A correspondent of the American Agriculturalist says:

"I think it would be well to call the attention of farmers to the use of coal tar as a paint. The tar produced in coal gas works is extensively used in England for painting fences, outbuildings, etc., and is being introduced in this country also. It never alters by exposure to the weather, and one or two good coats will last for many years. It is the cheapest and best black paint that can be used. Our buildings are painted with it; all our apparatus also, and even the wrought-iron pipe we place in the ground is coated with it. I think if its advantages were fully known it would be generally used throughout the United States. The government soaks the brick used in building the fort at Throg's Neck in this tar, which renders them impervious to water, and posts painted with it are protected from rot when in the ground as effectually as if they had been charred."

I know this tar is much more effectual than charring, and is not one-tenth the trouble. There are posts near this city which have now been set over ten years, and yet no appearance of decay. The coating is still perfect also.

The only objection to it as a paint above ground is its offensive smell from the heat of the sun.

No persons should allow themselves to set a single post without its application, and farmers who are putting out much fence cannot possibly be so short-sighted as to neglect it after it once comes to their notice.

It is doubly important to railroad companies from the fact that these roads run through the most level portions of the country, and consequently the most swampy and wet; therefore fence posts are the more liable to rot. The mode of application is as follows:

Have a large iron kettle so arranged that you can make and keep the tar hot; then after having removed the bark, if any, set the end of the post into the tar; and if the tar is not sufficiently deep to take the post into it as far as you wish to tar it, have a swab of cloth tied upon a broom handle or other stick, and swab it up at least 6 to 10 inches above the ground line when the post is set; then lift up the post, letting it drip a moment, and lay it away upon rails or poles placed for that purpose, not allowing them to touch each other until dry.

Two men will tar about 500 posts in one day, and one barrel of tar will be sufficient for that number. Who, then, will hesitate to adopt its use, especially when the tar can be purchased at the gas works for about two dollars per barrel?

MEATS—TO PRESERVE.—Beef—To Pickle for Long Keeping.—First, thoroughly rub salt into it and let it remain in bulk for 24 hours to draw off the blood. Second, take it up, letting it drain, and pack as desired. Third, have ready a pickle prepared as follows: For every 100 lbs. of beef use 7 lbs. of salt; saltpetre and cayenne pepper, of each, 1 oz.; molasses, 1 qt., and soft water, 8 gals.; boil and skim well, and when cold pour it over the beef.

This amount will cover 100 lbs., if it has been properly packed. I have found persons who use nothing but salt with the water, and putting on hot, scalding again at the end of three weeks and putting on hot again. The only object claimed for putting the brine on the meat while hot, is, that it hardens the surface, which retains the juices, instead of drawing them off.

2. **The Michigan Farmer's Method**—Is "for each 100 lbs. of beef use salt, 5 lbs.; saltpetre, ¼ oz.; brown sugar, 1 lb.; dissolve in sufficient water to cover the meat; two weeks after take up, drain, throw away the brine, make more the same as first; it will keep the season through; when to be boiled for eating put into boiling water; for soups into cold water."

I claim a preference for the first plan, of drawing off the blood before pickling, as saving labor; and that the cayenne and saltpetre improves the flavor and helps preserve; and that boiling and skimming cleanse the brine very much. Of late years I pursue the following:

3. **Beef—To Pickle for Winter or Present Use and for Drying.**—Cut your beef into sizable pieces, sprinkle a little salt upon the bottom of the barrel only, then pack your beef without salt among it, and when packed pour over it a brine made by dissolving 6 lbs. of salt for each 100 lbs. of beef in just sufficient cold water to handsomely cover it.

You will find that you can cut and fry as nice as fresh for a long time; just right for boiling also; and when it gets a little too salt for frying, you can freshen it nearly as nicely as pork, for frying purposes or you can boil of it, then make a stew for breakfast, very nice indeed. By the other plan it soon becomes too salt for eating, and the juices are drawn off by the salt. In three weeks, perhaps a little less, such pieces as are designed for drying will be ready to hang up, by soaking over night to remove the salt from the outside. Do not be afraid of this way; for it is very nice for winter and drying purposes; but if any is left until warm weather, throw away this brine, put salt among what is left and cover with the first brine, and all is right for long keeping.

4. **Mutton Hams—To Pickle for Drying.**—First take weak brine and put the hams into it for 2 days, then pour off and apply the following, and let it remain on from 2 to 3 weeks according to size: For each 100 lbs. take salt, 6 lbs.; saltpeter, 1 oz.; saleratus, 2 ozs.; molasses, 1 pt.; water, 6 gals., will cover these if closely packed.

The saleratus keeps the mutton from becoming too hard.

5. **Curing, Smoking, and Keeping Hams.**—Rose Cottage, Muncie, Ind. I noticed an article in the Gazette headed as above from the pen of Mr. Alexander Brooks, taken from the Rural New Yorker, and as I have some useful experience in that line, I desire to suggest my plan for curing and keeping.

To a cask of hams, say from 25 to 30, after having packed them closely and sprinkled them slightly with salt, I let them lie thus for 3 days; then make a brine sufficient to cover them, by putting salt into clear water, making it strong enough to bear up a sound egg or potato. I then add ½ lb. of saltpeter, and a gallon of molasses; let them lie in the brine for 6 weeks —they are then exactly right. I then take them up and let them drain; the while damp, rub the flesh side and the end of the leg with finely pulverized black, red, or cayenne pepper; let it be as fine as dust, and dust every part of the flesh side, then hang them up and smoke. You may leave them hanging in the smokehouse or other cool place where the rats cannot reach them, as they are perfectly safe from all insects; and will be a dish fit for a prince, or an American citizen, which is better.

Respectfully yours.
THOMAS J. SAMPLE.

I find that Mr. Sample uses twice as much saltpeter and double the time, for my eating, but perhaps not for general market.

If grocers will take this plan for preparing their hams and shoulders, there will be no need of sacking; and such as they buy in during the summer should receive a coat of pepper immediately, to prevent annoyance from flies.

6. **T. E. Hamilton's Maryland Method.**—The hams of Maryland and Virginia have long enjoyed a wide celebrity. At one of the exhibitions of the Maryland State Agricultural Society, four premiums were awarded for hams. The one which took the first premium, was cured by Mr. T. E. Hamilton, from the following recipe:

"To every 100 lbs. take best coarse salt, 8 lbs.; saltpeter, 2 ozs.; brown sugar, 2 lbs.; potash, 1¼ ozs.; and water, 4 gals. Mix the above, and pour the brine over the meat, after it has lain in the tub for some two days. Let the hams remain six weeks in the brine and then dry several days before smoking. I have generally had the meat rubbed with fine salt when it is packed down."

The meat should be perfectly cool before packing. The potash keeps it from drying up and becoming hard.

7. **Pork—To Have Fresh From Winter Killing, for Summer Frying.**—Take pork when killed in the early part of the winter, and let it lay in pickle about a week or ten days; or until just sufficiently salted to be palatable; then slice it up and fry it about half or two-thirds as much as you would for present eating; now lay it away in its own grease, in jars properly covered, in a cool place, as you would lard.

When desired, in spring or summer, to have fresh pork, take out what you wish and re-fry suitable for eating, and you have it as nice as can be imagined. Try a jar of it, and know that some things can be done as well as others. It is equally applicable to hams and shoulders, and I have no doubt it will work as well upon beef, using lard sufficient to cover it. So well satisfied am I of it that I have put in beefsteak this spring, with my fresh ham, in frying for summer use. It works upon the principle of canning fruits to exclude the air. I put in no bone.

8. **Salt Pork for Frying.—Nearly Equal to Fresh.**—For the benefit of those who are obliged to use considerable salt pork, the following method much improves it for frying:

Cut as many slices as may be needed; if for breakfast, the night previous, and soak till morning in a quart or two of milk and water, about one-half milk, skimmed milk, sour milk, or buttermilk;—rinse till the water is clear and then fry. It is nearly or quite as nice as fresh pork,—both the fat and lean parts.

Occasionally I like to have this rolled in cornmeal before frying, as it makes such a nice imitation of fresh fish.

9. **Fresh Meat—To Keep a Week or Two, in Summer.**—Farmers or others living at a distance from butchers, can keep fresh meat very nicely for a week or two, by putting it into sour milk or buttermilk, placing it in a cool cellar. The bone or fat need not be removed.

Rinse well when used.

10. **Smoked Meat—To Preserve For Years, or For Sea Voyages.**—How often are we disappointed in our hopes of having sweet hams during the summer? After carefully curing and smoking, and sewing them up in bags, and white-washing them; we often find that either the fly has commenced a family in our hams, or that the choice parts around the bone are tainted, and the whole spoiled.

Now this can be easily avoided by packing them in pulverized charcoal. No matter how hot the weather, nor how thick the flies, hams will keep as sweet when packed, for years. The preservative quality of charcoal will keep them till charcoal decays; or sufficiently long to have accompanied Cook three times around the world.

11. **The Rural New Yorker's Method.**—It says: "In the spring cut the smoked ham in slices, fry till partly done, pack in a stone jar alternate layers of ham and gravy. If the ham should be very lean, use lard for gravy. Be sure and fry the

ham in the lard, so that it will be well seasoned. When wanted for use, take up, finish frying, and it is ready for the table."

The only trouble is that we can't keep it half long enough, it is so good and handy.

12. **The New England Farmer's "Saving His Bacon."**—About a couple of years ago we were entertained at the house of a friend, with a dinner of eggs and bacon. We complimented our host on the superior quality of his bacon; and were curious to inquire the way to like sucess in the preparation of a dainty article of diet, though one that is better fitted for the palate of an epicure than for the stomach of a dyspeptic. To our surprise we were informed that that portion of our meal was cooked eight months before.

Upon asking for an explanation, he stated that it was his practice to slice and fry his bacon immediately on its being cured, and then pack it in its own fat. When occasion came for using it, the slices, slightly refried, have all the freshness and flavor of new bacon just prepared. By this precaution, our friend always succeeded in "Saving his bacon," fresh and sweet, through the hottest of weather.—New England Farmer.

I have no doubt but what it will do as well to pack meats fried in this way in tubs or barrels as in jars; but I rather prefer covered jars, putting a couple of thicknesses of cloth over the jar before putting on the cover; placed in a cool cellar.

I also find it necessary to put in lard occasionally as you are frying, as there is not generally enough brought out by the frying to fill the crevices between the slices, which must be filled.

CANNING FRUITS—Peaches and Pears.—After paring and coring, put amongst them sufficient sugar to make them palatable for present eating,—about 3 to 4 lbs. only for each bushel; let them stand a while to dissolve the sugar, not using any water; then heat to a boil, and continue the boiling, with care, from 20 to 30 minutes; or sufficiently long to heat through, which expels the air.

Have ready a kettle of hot water, into which dip the can long enough to heat it; then fill in the fruit while hot, corking it immediately, and dip the end of the cork into the "Cement for Canning Fruits." When cold it is best to dip the second time to make sure that no air holes are left which would spoil the fruit. All canned fruits are to be kept in a very cool cellar.

We have, yesterday and today, been eating peaches put up in this way, two years ago, which were very nice indeed. See "Peaches, To Peel."

2. **Berries, Plums, Cherries, Etc.**—Raspberries, blackberries, whortleberries, currants, cherries and plums, need not be boiled over ten to fifteen minutes; using sugar to make palatable, in all cases; as it must be put in some time, and it helps to preserve the fruit.

They require the same care in heating cans, etc., as above, for peaches.

3. **Strawberries.**—For strawberries, put sugar, ½ lb. for each lb. of berries; and proceed as for berries above.

Strawberries are so juicy, and have such a tendency to fermentation, that it is almost impossible to keep them. I have found it absolutely so until I adopted the plan of using the amount of sugar above named; if others can do with less, they can benefit the public by telling me how they do it.

5. **Tomatoes.**—For tomatoes, scald and peel them as for other cooking; then scald, or rather boil for about fifteen minutes only, and can as above.

Or what I think best, is to use a little salt, and put them into half-gallon jugs; for we want them in too great quantities to stop on a few glass jars, such as we use for other fruits; as for tin cans. I never use them; if you do use tin cans for tomatoes it will not do to use salt with them, as it has a tendency to cause rust.

6. **Cement for Canning Fruits.**—Rosin, 1 lb.; lard, tallow and beeswax, of each 1 oz.

Melt and stir together; and have it hot, ready to dip into when canning.

7. **Rural New Yorker's Method.**—The editor says:

"From four years' experience with, not only strawberries, but peaches, cherries, raspberries, pineapples, etc., without losing a single jar, the flavor being also perfect: Use only self-sealing glass jars. Put into a porcelain preserving kettle enough to fill two quart jars; sprinkle on sugar, ¼ lb.; place over a slow fire and heat through, not cooked. While the fruit is heating, keep the jars filled with hot water. Fill up to the brim, and seal immediately.

"As it cools a vacuum is formed which prevents bursting. In this way every kind of fruit will retain its flavor. Sometimes a thick leathery mold forms on the top—if so, all the better."

CATCHUP—Tomato Catchup.—Take perfectly ripe tomatoes, ½ bushel; wash them clean and break to pieces; then put over the fire and let them come to a boil, and remove from the fire; when they are sufficiently cool to allow your hands in them, rub through a wire sieve; and to what goes through, add salt, 2 teacups; allspice and cloves, of each, ground, 1 teacup; best vinegar, 1 qt. Put onto the fire again and cook 1 hour, stirring with great care to avoid burning. Bottle and seal for use. If too thick when used, put in a little vinegar. If they were very juicy they may need boiling over an hour.

This recipe is from Mrs. Hardy, of the American Hotel, Dresden, O., and is decidedly the best catchup which I have ever tasted; the only fault I have ever heard attributed to it was, "I wish we had made more of it." "We have not got half enough of it," etc. But there are those who cannot use tomatoes in any shape; such persons will undoubtedly like the following:

2. **Currant Catchup.**—Nice fully ripe currants, 4 lbs.; sugar, 1½ lbs.; cinnamon, ground, 1 tablespoon; salt, with ground cloves and pepper, of each 1 teaspoon; vinegar, 1 pt.

Stew the currants and sugar until quite thick; then add the other ingredients, and bottle for use.

PRESERVES—Tomato Preserves.—As some persons will have preserves, I give them the plan of making the most healthy of any in use:

Take ripe, scalded and peeled tomatoes, 13 lbs.; nice, scalding hot molasses, 1 gal.; pour the molasses upon them and let stand twelve hours; then boil until they are properly cooked; now skim out the tomatoes, but continue boiling the syrup until quite thick; then pour again upon the tomatoes and put away as other preserves. A tablespoon of ginger tied up in a bit of cloth and boiled in them, gives a nice flavor; or the extracts can be used; or lemon peel, as preferred—if sugar is used, pound for pound is the amount.

But I prefer to put them, or any other fruit, into jugs, cans, or bottles, which retains the natural flavor and does not injure the stomach, which all preserves do, to a greater or less extent. Yet I give you another, because it does so nicely in place of citron, in cakes.

2. **Preserved Watermelon in Place of Citron, For Cakes.**—The harder part of watermelon, next the skin, made into preserves with sugar; equal weights; cooking down the syrup rather more than for common use, causes it to granulate, like citron, which is kept for sale.

This chopped fine, as citron, makes an excellent substitute for that article; and for very much less cost. Call in the neighbors, to help eat about a dozen good sized melons, and you have outside enough for the experiment; and if the doctor is near he will help with a fee. They are nice, also, in mince pies in place of raisins.

CURRANTS—To Dry With Sugar.—Take fully ripe currants, stemmed, 5 lbs.; sugar, 1 lb.; put into a brass kettle, stirring at first, then as the currants boil up to the top skim them off; boil down the juicy syrup until quite thick and pour it over the currants, mixing well; then place on suitable dishes and dry them by placing in a low box over which you can place mosquito bar, to keep away flies.

When properly dried, put in jars and tie paper over them. Put cold water upon them and stew as other fruit for eating or pie making, adding more sugar if desired.

TINWARE—To Mend by the Heat of a Candle.—Take a vial about two-thirds full of muriatic acid, and put into it little bits of sheet zinc, as long as it dissolves them; then put in a crumb of sal-ammoniac and fill up with water, and it is ready to use.

With the cork of the vial wet the place to be mended with the preparation; then put a piece of sheet zinc over the hole and hold a lighted candle or spirit lamp under the place which melts the solder on the tin and causes the zinc to adhere without further trouble. Wet the zinc also with the solution. Or a little solder may be put on in place of the zinc, or with the zinc.

WATER FILTER—Home Made.—Rainwater is much healthier than hard water as a beverage; and the following will be found an easy and cheap way to fit it for drinking purposes:

Have an oak tub made, holding from half to a barrel, according to the amount of water needed in the family; let it stand on end, with a faucet near the bottom; or, I prefer a hole through the bottom, near the front side, with a tube in it which prevents the water from rotting the outside of the tub; then put clean pebbles 3 or 4 inches in thickness over the bottom of the tub; now have charcoal pulverized to the size of small peas (that made from hard maple is best) and put in half a bushel or so at a time; pound it down quite firmly, then put in more and pound again until the tub is filled to within 8 inches of the top; and again put on two inches more of pebbles; then put a piece of clean white flannel over the whole top as a strainer.

The flannel can be washed occasionally, to remove the impurities collected from the water, and it might be well to put a flannel between the pebbles and flannel at the bottom also. When the charcoal becomes foul, it can be renewed as before. but will work a whole season without renewing. Put on your water freely until it becomes clear; when you will be as well satisfied as you would be if it run through a patent filter, costing six times as much as this.

A large jar to hold the filtered water can be set in an ice box if preferred; or an occasional piece of ice can be put in the water; but if the filter is set in the cellar, as it should be, the water will be sufficiently cool for health. This makes a good cider filter, also, first straining the cider through cotton to free it from the coarsest pomace.

TIRE—To Keep on the Wheel.—A correspondent of the Southern Planter says: "I ironed a wagon some years ago for my own use, and before putting on the tires I filled the felloes with linseed oil; and the tires have worn out and were never loose. I ironed a buggy for my own use seven years ago, and the tires are now as tight as when put on. My method of filling the felloes with the oil is as follows:

I use a long cast iron oil heater, made for the purpose; the oil is brought to a boiling heat, the wheel is placed on a stick, so as to hang the oil, each felly an hour, for a common sized felly. The timber should be dry, as green timber will not take oil. Care should be taken that the oil be not made hotter than a boiling heat, in order that the timber be not burnt. Timber filled with oil is not susceptible to water, and is much more durable."

I was amused some time ago when I told a blacksmith how to keep tires tight on wheels, by his telling me it was a profitable business to tighten tires; and the wagon maker will say it is profitable to him to make and repair wheels—but what will the farmer, who supports the wheel-wright and the blacksmith say? The greatest good to the greatest number, is my motto.

WEEDS—To Destroy in Walks.—The following method to destroy weeds is pursued at the mint in Paris, with good effect:

Water, 10 gals.; stone lime, 20 lbs.; flour of sulphur, 2 lbs. Boil in an iron kettle; after settling, the clear part is to be poured off and sprinkled freely upon the weedy walks.

Care must be taken for it will destroy weeds; and as certainly destroy edging and border flowers if sprinkled on them.

CEMENTS—Cement For China, Etc., Which Stands Fire and Water.—With a small camel's hair brush rub the broken edges with a little carriage oil varnish.

If neatly put together, the fracture will hardly be perceptible, and when thoroughly dry will stand both fire and water.

2. **Russian Cement.**—Much is said about cements; but there is probably nothing so white and clear and certainly nothing better than the following:

Russian isinglass dissolved in pure soft water, snow water is best; for it takes 12 hours to soften it by soaking in pure soft water, then considerable heat to dissolve it; after which it is applicable to statuary, china, glass, alabaster, etc., etc.

In all cements the pieces must be secured until dry. It is easy to reason that if twelve to fifteen hours are required to soften this isinglass that no dish washing will ever affect it. You may judge from the price whether you get the Russian, for 37 cents per ounce is as low as the genuine article can be purchased in small quantities, whilst the common bear a price of only from 10 to 12 cents, and even less.

3. **Cement, Cheap and Valuable.**—A durable cement is made by burning oyster shells and pulverizing the lime from them very fine; then mixing it with white of egg to a thick paste and applying it to the china or glass, and securing the pieces together until dry.

When it is dry it takes a very long soaking for it to become soft again. I have lifted thirty pounds by the stem of a wine glass which had been broken and mended with this cement. Common lime will do, but it is not so good; either should be fresh burned, and only mix what is needed, for when once dry you cannot soften it.

4. **Cement—Waterproof, for Cloth or Belting.**—Take ale, 1 pt.; best Russia isinglass, 2 ozs.; put them into a common glue kettle and boil until the isinglass is dissolved; then add 4 ozs. of the best common glue and dissolve it with the other; then slowly add 1½ ozs. of boiled linseed oil, stirring all the time while adding, and until well mixed. When cold it will resemble India rubber. When you wish to use this dissolve what you need in a suitable quantity of ale to have the consistence of thick glue. It is applicable for earthenware, china, glass, or leather; for harness; bands for machinery; cloth belts for cracker machines for bakers, etc., etc. If for leather, shave off as if for sewing, apply the cement with a brush while hot, laying a weight to keep each joint firmly for six to ten hours, or over night.

This cement will supersede "Spaulding's Prepared Glue," and all the white cements you can scare up, if you use good articles to make it of—not less than 30 or 40 cents a pound for common glue, and 3 shillings per ounce for the Russian isinglass; but the expense of this will cause it only to be used when dampness is to be contended with.

If you have not a glue kettle, take an oyster can and punch some holes through the top of it, putting in a string to suspend it on a stick in a common kettle of boiling water, and keep it boiling in that way.

5. **Cement, or Furniture Glue, for House Use.**—To mend marble, wood, glass, china and ornamental ware—take water, 1 gal.; nice glue, 3 lbs.; white lead, 4 ozs.; whisky, 3 qts.

Mix by dissolving the glue in the water; remove from the fire and stir in the white lead, then add the whisky, which keeps it fluid, except in the coldest weather. Warm and stir it up when applied.

6. **White Cement.**—Take white (fish) glue, 1 lb. 10 ozs.; dry white lead, 6 ozs.; soft water, 3 pts.; alcohol, 1 pt.

Dissolve the glue by putting it into a tin kettle, or dish, containing the water, and set this dish into a kettle of water, to prevent the glue from being burned; when the glue is all dissolved, put in the lead and stir and boil until all is thoroughly mixed; remove from the fire, and, when cool enough to bottle, add the alcohol, and bottle while it is yet warm, keeping it corked. This last recipe has been sold about the country for from 25 cents to $5, and one man gave a horse for it.

7. **German Cement.**—Two measures of litharge, and 1 each of unslacked lime and flint glass; each to be pulverized separately before mixing; then to use it, wet it up with old drying oil.

The Germans use it for glass and chinaware only. Water hardens it, instead of softening.

8. **Scrapbook Paste, or Cement.**—A piece of common glue, 2 square inches; dissolve it in water, adding as much pulverized alum in weight as of the glue; now mix flour, ½ teaspoon in a little water; stir it in and boil. When nearly cool stir in oil of lavender, 2 teaspoons.

This should make a pint of paste, which will keep a long time if tightly covered when not in use.

Cement—Preserving Leaks About Chimneys, Etc.—Dry sand, 1 pt.; ashes, 2 pts.; clay dried and pulverized, 3 pts.; all to be pulverized and mixed into a paste with linseed oil.

Apply it while soft, as desired, and when it becomes hard, water will have no effect upon it. It may be used for walks, and I think it would do well in cisterns and on roofs, etc.

MAGIC PAPER.—Used to Transfer Figures in Embroidery, or Impressions of Leaves for Herbariums.—Take lard oil, or sweet oil, mixed to the consistence of cream, with either of the following paints, the color of which is desired: Prussian blue, lampblack, Venetian red or chrome green, either of which should be rubbed with a knife on a plate or stone until smooth. Use rather thin but firm paper; put on with a sponge and wipe off as dry as convenient; then lay them between uncolored paper, or between newspapers, and press by laying books or some other flat substance upon them, until the surplus oil is absorbed, when it is ready for use.

Directions.—For taking off patterns of embroidery place a piece of thin paper over the embroidery to prevent soiling, then lay on the magic paper and put on the cloth you wish to take the copy on, to embroider; pin fast and rub over with a spoon handle; and every part of the raised figure will show upon the plain cloth. To take impressions of leaves on paper, place the leaf between two sheets of this paper, and rub over it hard, then take the leaf out and place it between two sheets of white paper; rub again and you will have a beautiful impression of both sides of the leaf or flower. Persons traveling without pen or ink, can write with a sharp stick, placing a sheet of this paper over a sheet of white paper.

RAT DESTROYERS—Rat Exterminator.—Flour, 3 lbs.; water only sufficient to make it into a thick paste; then dissolve, phosphorus, 1 oz., in butter, 1½ oz., by heat. Mix.

This you will leave, thickly spread on bread, where rats can get at it; or make into balls, which is preferable, covered or rolled with sugar. If it is desired to sell this article and you wish to color to hide its composition, work into it pulverized turmeric, 2 oz. Or:

2. Take warm water, 1 qt.; lard, 2 lbs.; phosphorus, 1 oz. Mix and thicken with flour.

It is found best to make only in small quantities, as the phosphorous loses its power by exposure. Some will object to killing rats about the house; but I had rather smell their dead carcasses than taste their tail prints, left on everything possible for them to get at, or suffer loss from their toothprints on all things possible for them to devour or destroy.

3. **Death For the Old Sly Rat.**—Some rats get so cunning that it is almost impossible to overcome their shrewdness.

Then get a few grains of strychnine, having a little fresh lean meat broiled; cut it into small bits, by using a fork to hold it, for if held by the fingers they will smell them and not eat it; cutting with a sharp penknife; then cut a little hole into the bits, and put in a little of the strychnine and close up the meat together again.

Put these on a plate where they frequent, but not near their holes, laying a piece of paper over the meat; when these are eaten put more, for three or four days, and you are soon done with the wisest of them.

4. **Rats—To Drive Away Alive.**—If you choose to drive them away alive, take potash pulverized, and put quite plenty of it into all their holes about the house. If the potash is pulverized and left in the air, it becomes pasty; then it can be daubed on the boards or planks, where they come through into rooms.

They will sooner leave than be obliged to have a continual re-application of this "Doctor Stuff," every time they go through their holes. See "Potash to Make."

5. Scotch snuff, or pulverized cayenne pepper, mixed to-

gether, or separate, if freely put into their burrowing holes, will certainly send them off, at a sneezing pace.

6. **Rat Poison—From Sir Humphrey Davy.**—A tasteless, odorless and infallible rat poison, he says, is made as follows:

"Mix carbonate of barytes, 2 ozs., with grease, 1 lb."

It produces great thirst, consequently water must be set by it, for death takes place immediately after drinking, not giving them time to go back to their holes. I obtained this at such a late day that I have not had opportunity of testing it. Be sure that no other animal can get at it, except rats and mice; for it is a most deadly poison. Should this be found as effectual as recommended, it will prove just the thing for rat killing, as they can be gathered up and carried away, thus avoiding the stench arising from their dead carcasses.

FISH—Art of Catching.—Mix the juice of lovage or smellage, with any kind of bait, or a few drops of the oil of rhodium. India cockle also, (Coculus Indicus,) is sometimes mixed with flour dough and sprinkled on the surface of still water. This intoxicates the fish and makes them turn up on top of the water. Mullein seed, pulverized, and used in place of the India cockle is about equal to that article.

They may be eaten without fear, but this will destroy many fish. Oil of rhodium is the best plan.

"It is generally supposed," says Mr. R. I. Pell, "that fish are not possessed of the sense of smell. From the following experiments I am convinced they are: I placed a hook, well baited with an angleworm, enticingly before a perch weighing 1½ pounds; he did not take the least notice of it. It was withdrawn, and a drop of rhodium brought in contact with it, when it was dropped very carefully several feet behind him; he immediately turned and seized the bait. This experiment was several times repeated, with like success. It has been denied that fish have the sense of hearing. I find many varieties very sensitive to noise, and by numerous experiments am convinced that their sense of hearing is acute."

STRAW AND CHIP HATS—To Varnish Black.—Best alcohol, 4 ozs.; pulverized, black sealing wax, 1 oz.; put them into a vial, and put the vial into a warm place, stirring or shaking occasionally, until the wax is dissolved; apply it when warm by means of a soft brush, before the fire or in the sun.

It gives stiffness to old straw hats or bonnets, makes a beautiful gloss, and resists wet; if anything else is required, just apply it to small baskets also, and see how nicely they will look.

2. **Straw Bonnets—To Color a Beautiful Slate.**—First soak the bonnet in rather strong warm suds for fifteen minutes, this is to remove sizing or stiffening; then rinse in warm water to get out the soap; now scald cudbear, 1 oz., in sufficient water to cover the hat or bonnet—work the bonnet in this dye at 180 degrees of heat, until you get a light purple; now have a bucket of cold water blued with the extract of indigo, about ½ oz., and work or stir the bonnet in this, until the tint pleases.

Dry, then rinse out with cold water and dry again, in the shade. If you get the purple too deep in shade, the final slate will be too dark. See "Extract of Indigo, or Chemic."

STUCCO PLASTERING—For Brick and Gravel Houses.— First make up as much mortar as you need for the job, with good common lime; using only ¾ or four-fifths, at most, as much lime as needed for common work—the other fourth or fifth is to be water lime; and not to be put in only as used. The sand must be coarse and free from loam or dirt.

To prepare the white and colored washes, run off common lime enough with hot water, to make a whitewash to go over the whole job. This whitewash is to be colored the tint desired for the work. Be sure to make color wash enough at one time, or you will find it hard to get the shades alike; saving a little of the whitewash without color, to pencil the seams and also for specking, as mentioned below. The colors used are lampblack, Spanish brown, or Venetian red, as preferred, and these are cut or dissolved in whisky; then putting into the whitewash to suit.

When these washes are all prepared, wet up as much of the mortar as can be put on in 20 to 40 minutes, and mix in the fourth or fifth of the cement, and put on as fast as possible; first wetting the wall very wet with water. Some cement will set in 20 and some in 40 to 50 minutes. When you see the time necessary for the kind you are using, act accordingly, and only mix the cement into as much mortar as your help will put on before it sets; beginning at the top of the wall with your scaffolding and working down, which prevents too much specking from the colors. Have a man to follow right after with a float, keeping the stucco very wet while floating down level and smooth; and the longer it is floated and wet, the better will be the job. Even after it is floated down well, keep a man wetting it with a brush until you get the whole line on, around the house, as the water lime must be kept quite wet for some considerable time, to set properly. Heed this caution, and if water never gets in behind the plastering from bad cornice or leaky roofs, it will never peel off. When this line of scaffolding is plastered, take out enough of the color wash, running it through a sieve, and go over the plastering; lamp-black alone gives it a bluish slate color; if a little of the brown is added with the black, it will be a little reddish, and if the red is used without the brown, it will be quite red. I prefer sufficient of the black only to make a gray stone color. A brown, however, looks exceedingly well. If you choose, you can make one-half of the color wash darker than the other—having laid it off into blocks resembling stone, by means of a straight-edge, and piece of board about half an inch thick, paint every other block with the darker wash to represent different shades of stone. Some of our best buildings are done in this way and look well.

Then to give it a granite appearance, take a small paint brush and dip it into the whitewash saved for this purpose; strike it across a hammer handle so as to throw the specks from the brush upon the wall, then the same with black and red. Pencil the seams with the whitewash, which gives it the appearance of mortar, as in real stonework.

Now you are ready to move down the scaffold, and go over the same thing as before. After the colors have been dissolved with spirits, they can be reduced with water, or what is better for them and the color wash also, is skimmed milk; and where milk is plenty, it ought to be used in place of water, for whitewash or colorwashes, as it helps to resist the weather, and prevents the colors from fading—see "Paint, to Make Without Lead or Oil," which gives you the philosophy of using milk. Speck quite freely with the white, then about half as much with the black, and then rather free again with the red. The proportion of lime, probably, should not exceed one to six or seven of sand. Our university buildings, represented in the frontispiece, except the laboratory and law building, which have been more recently put up, are finished with it, and also whole blocks in the business part of our city.

Professor Douglass' house is probably the prettiest color of any in the city—an imitation of "Freestone," made with lampblack, yellow ochre, and a larger proportion of Spanish brown. But all will have a preference for some special color; then, with a little ingenuity and patience, nearly any colored stone can be imitated.

GRAVEL HOUSES—To Make—Proportions of Lime, Sand and Gravel.—It has become quite common to put up gravel houses; and many persons are at a great loss to know what proportion of materials to use. Various proportions have been proposed; but from the fact that the philosophy was not explained, no real light was given upon the subject.

All that is required to know is that sand and lime are to be used in proportion to the size of the gravel—say for 15 bushels of clean gravel, from the size of peas up to that of hen's eggs, it will take about 3 bushels of clean sharp sand and 1 of lime to fill the crevices without swelling the bulk of the gravel. If the gravel is coarse, up to 5 bushels of sand may be required, but the lime will not need to be increased but very little, if any. Then the philosophy of the thing is this—about 1 to 1¼ bushels of lime to 15 bushels of gravel, and just sand enough to fill the crevices without increasing the bulk as above mentioned.

If the gravel is free of dirt, the sand also clean, and the weather dry, the walls can be raised one foot each day, if you have help to do that amount of labor.

Some prefer to make the gravel and sand into mortar and press it into bricks; then lay into walls, but the wall must be stronger if laid up solid, in board frames, made to raise up as required.

Many persons argue for the eight-square or octagon house; but I like the square form much the best, carrying up the hall and main partition walls of the same material. The eight square house looks like an old fort, or water tank, and is very expensive to finish; costing much more than the same room with square angles; for mechanics cannot put up cornice outside, or in, in less than double the time required for making the common square miter.

Professor Winchell, of the university, and state geologist, in this city, has put up one of the octagons, which looks well, however, for the style of finish is what attracts attention, instead of the style of form.

WHITEWASHES AND CHEAP PAINTS.—Brilliant Stucco Whitewash—Will Last on Brick or Stone, Twenty to Thirty Years.—Many have heard of the brilliant stucco whitewash on the east end of the President's house at Washington. The following is a recipe for it, as gleaned from the National Intelligencer, with some additional improvements learned by experiments:

Nice unslaked lime, ½ bushel; slake it with boiling water; cover it during the process, to keep in the steam. Strain the liquid through a fine sieve or strainer, and add to it salt, 1 peck; previously well dissolved in water; rice, 3 lbs.—boiled to a thin paste, and stirred in boiling hot; Spanish whiting, ½ lb.; clean nice glue, 1 lb., which has been previously dissolved by soaking it well, and then hanging it over a slow fire in a small kettle, immersed in a larger one filled with water. Now add hot water, 5 gals., to the mixture, stir it well, and let it stand a few days covered from the dirt.

It should be put on hot. For this purpose it can be kept in a kettle on a portable furnace. Brushes more or less small may be used, according to the neatness of job required. It answers as well as oil paint for brick or stone, and is much cheaper.

There is one house in our city which had this applied twelve years ago, and is yet nice and bright. It has retained its brilliancy over thirty years.

Coloring matter, dissolved in whisky, may be put in and made of any shade you like; Spanish brown stirred in will make red-pink, more or less deep, according to quantity. A delicate tinge of this is very pretty for inside walls. Finely pulverized common clay, well mixed with Spanish brown, makes reddish stone color. Yellow ochre stirred in makes yellow wash, but chrome goes further, and makes a color generally esteemed prettier. In all these cases the darkness of the shade, of course, is determined by the quantity of the coloring used. It is difficult to make rules, because tastes are different—it would be best to try experiments on a shingle and let it dry. Green must not be mixed with lime. The lime destroys the color, and the color has an effect on the whitewash which makes it crack and peel. When inside walls have been badly smoked, and you wish to make them a clean, clear white, it is well to squeeze indigo plentifully through a bag into the water you use, before it is stirred into the whole mixture, or blue vitriol pulverized and dissolved in boiling water and put into whitewash, gives a beautiful blue tint. If a larger quantity than five gallons be wanted, the same proportions should be observed.

2. **Whitewash—Very Nice For Rooms.**—Take whiting, 4 lbs.;

white or common glue, 2 ozs.; stand the glue in cold water over night; mix the whiting with cold water, and heat the glue until dissolved; and pour it into the other, hot. Make of a proper consistence to apply with a common whitewash brush.

Use these proportions for a greater or less amount. In England scarcely any other kind of whitewash is used.

A lady, of Black River Falls, Wis., who had one of my books, wrote to me, expressing her thankfulness for the beauty of this whitewash.

3. **Paint—To Make Without Lead or Oil.**—Whiting, 5 lbs.; skimmed milk, 2 qts.; fresh slaked lime, 2 ozs. Put the lime into a stoneware vessel, pour upon it a sufficient quantity of the milk to make a mixture resembling cream; the balance of the milk is then to be added; and lastly the whiting is to be crumbled upon the surface of the fluid, in which it gradually sinks. At this period it must be well stirred in, or ground as you would other paint, and it is fit for use.

There may be added any coloring matter that suits the fancy, (see the first whitewash for mixing colors,) to be applied in the same manner as other paints, and in a few hours it will become perfectly dry. Another coat may then be added and so on until the work is done. This paint is of great tenacity, bears rubbing with a coarse cloth, has little smell, even when wet, and when dry is inodorous. The above quantity is sufficient for fifty-seven yards.—Annapolis Republican.

"We endorse the recipe. The casein or curd of the milk, by the action of the caustic lime, becomes insoluble and has been used, for time immemorial, as a lute for chemical experiments. It is a good, and, in comparison with white lead, a durable paint."—Moore's Rural New Yorker.

Most of the cheap paints will require about three coats. White lead always requires two, but some people think because they get a cheap paint that one coat ought to make a good job. Two will generally do with any except white.

4. **White Paint—A New Way of Manufacturing**—The following was communicated by a man who was formerly a carpenter in the U. S. Navy.

"During a cruise in the South Pacific, we went into the harbor of Coquimbo; and as the ship had been out a long time, she was covered with rust from stem to stern. It was the anxious wish of the commander that she should be restored to her original colors; but on examining the storeroom, it was ascertained that there was not a pound of white lead in the ship. In this emergency I bethought me of an expedient which concocted an admirable substitute, composed of the following ingredients:

"Air-slaked lime, pulverized until it was of the fineness of flour, which was then passed through a sieve. Rice boiled in a large kettle until the substance was drawn entirely out of the grain; the water, then of a plastic nature, was strained to separate the grain, etc., from the clear liquid. A tub, about the size of a half barrel, of the prepared lime and rice water, was mixed with 1 gallon of linseed oil; and the material had so much the appearance of paint that a novice could not have told the difference.

"The ship was painted outside and inboard with the above mixture (which cost next to nothing), and never presented a finer white streak on her bends, or cleaner bulwarks and berthdeck than on that occasion, and no other kind of white paint was used during the remainder of the cruise."

If this is good for ships out and inboard, it is worth trying for fences and outwork requiring a cheap white paint.

5. **Black and Green Paint—Durable and Cheap, for Outdoor Work.**—Any quantity of charcoal, powdered; a sufficient quantity of litharage as a dryer, to be well levigated (rubbed smooth) with linseed oil; and when used, to be thinned with well boiled linseed oil. The above forms a good black paint.

By adding yellow ochre, an excellent green is produced, which is preferable to the bright green used by painters for all garden work, as it does not fade with the sun.

This composition was first used by Dr. Parry, of Bath, on some spouts; which, on being examined fourteen years afterwards, were found to be as perfect as when first put up.

6. **Milk Paint, For Barns—Any Color.**—Mix water lime with skim milk, to a proper consistence to apply with a brush, and it is ready to use. It will adhere well to wood, whether smooth or rough, to brick, mortar or stone, where oil has not been used, (in which case it cleaves to some extent,) and forms a very hard substance, as durable as the best oil paint. It is too cheap to estimate, and anyone can put it on who can use a brush.—Country Gentleman.

Any color may be given to it, by using colors of the tinge desired, dissolving in whisky first, then adding in to suit the fancy, as in the first recipe.

If a red is preferred, mix Venetian red with milk, not using any lime. It looks well for fifteen years.

LIQUID AND WATERPROOF GLUES.—Liquid Glue.—To have a good glue always ready for use, just put a bottle two-thirds full of best common glue, and fill up the bottle with common whisky; cork it up, and set by for three or four days, and it will dissolve without the application of heat.

It will keep for years, and is always ready to use without heat, except in very cold weather, when it may need to be set a little while in a warm place before using.

2. **Imitation of Spalding's Glue.**—First, soak in cold water all the glue you wish to make at one time, using only glass, earthen or porcelain dishes; then by gentle heat dissolve the glue in the same water and pour in a little nitric acid, sufficient to give the glue a sour taste, like vinegar, or from ½ oz. to 1 oz. to each pound of glue.

The acid keeps it in a liquid state and prevents it from spoiling; as nice as Spalding's or any other, for a very trifling expense. If iron dishes are used, the acid corrodes them and turns the glue black. Or:

3. Acetic acid, 1 oz.; pure soft water, 6 ozs.; glue, 3 ozs.;

gum tragacanth, 1 oz.; mix, and if not as thick as desired, add a little more glue.

This keeps in a liquid state, does not decompose; and is valuable for druggists in labeling; also for house use; and if furniture men were not prejudiced, they would find it valuable in the shop.

4. **Waterproof Glue.**—Is made by first soaking the glue in cold water for an hour or two, or until it becomes a little soft, yet retaining its original form; then taking it from the water and dissolving it by gentle heat, stirring in a little boiled linseed oil.

If mahogany veneers were put on with this glue they would not fall off, as they now do, by the action of the atmosphere.

FIRE KINDLERS.—To make very nice fire kindlers, take rosin, any quantity, and melt it putting in for each pound being used, from 2 to 3 ozs. of tallow, and when all is hot, stir in pine sawdust to make very thick; and, while yet hot, spread it out about 1 inch thick, upon boards which have fine sawdust sprinkled upon them, to prevent it from sticking. When cold, break up into lumps about 1 inch square. But if for sale, take a thin board and press upon it, while yet warm, to lay it off into 1 inch squares; this makes it break regularly, if you press the crease sufficiently deep, greasing the marking board to prevent it from sticking.

One of these blocks will easily ignite with a match, and burn with a strong blaze long enough to kindle any wood fit to burn. The above sells readily in all our large towns and cities at a great profit.

2. Most of the published recipes call for rosin, 3 lbs.; tar, 1 qt.; and 1 gill of turpentine; but they make a black, sticky mess of stuff which always keeps the hands daubed. On the other hand, this makes a rosin colored kindler which breaks nicely also when cold; and they are decidedly a nice thing; and much more certain to start a fire than shavings. If the tar plan is used, 1 pt. is enough for 5 lbs. of rosin.

STARCH POLISH.—Whitewax, 1 oz.; spermaceti, 2 ozs.; melt them together with a gentle heat.

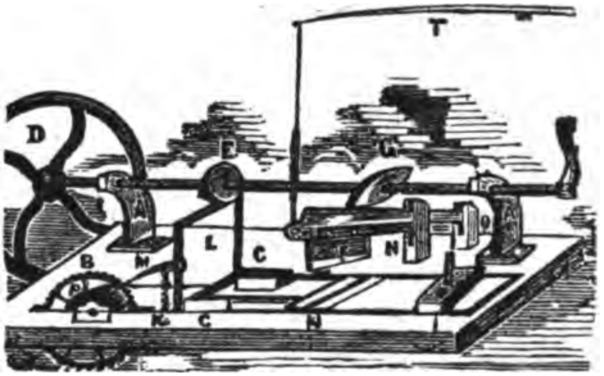
When you have prepared a sufficient amount of starch, in the usual way, for a dozen pieces—put into it a piece of the polish the size of a large pea; more or less, according to large or small washings. Or, thick gum solution (made by pouring boiling water upon gum arabic.) one tablespoon to a pint of starch, gives clothes a beautiful gloss.

PERCUSSION MATCHES—Of the Best Quality.—Chlorate of potash, ¾ lb.; glue, 3 lbs.; white lead, dry, 5 lbs.; red lead, ½ lb.; phosphorus, 2¾ lbs.

Directions.—First put the chlorate into a dish made for the purpose, deep, and of a suitable size to set into a kettle of water, which can be kept on the fire for 2 or 3 days, having 2 quarts of water on the chlorate; then put the glue on top of the chlorate water, and let soak until all is perfectly dissolved; then add the leads and heat up quite hot. and thoroughly mix; let cool and add the phosphorous, let it dissolve and be careful never to heat hot after the phosphorous is added; stir occasionally while dipping, and if little particles of phosphorous fires, push it down into the mixture, or put on warm water; if you put on cold water it will fly all over you. Keep it rather thin after the phosphorous is put in, and there will be no danger; although the chlorate of potash is considered a dangerous article to work with; so is powder, yet when you know how to work with them, you can do as safely with one as the other. When dry give them a coat of varnish.

I have been acquainted with a man for about fourteen years who makes them, and several others for a less time, without trouble or accident. A better match was never made to stand dampness or bear transportation without setting on fire. I have used and sold them much of the time, and speak from knowledge. One explosion has since taken place.

The plan pursued here in preparing the splints is as follows: Sawed pine timber from four to eight inches each way, is cut off the right length for the match, then one end of it is shaved smooth with a drawing knife; the block is held upon the horse by a brace from the top of the horse head against the back side of the block, so as to be out of the way of the knife instead of putting the block under the jaws of the horse head, as the dents made in the end of match timber would not answer; the front edge comes against a strip put on for that purpose; then glue the other end and put on brown paper which holds them together when split; machines are used to split with which feeds up the block enough each time the knife is raised, to make the size of the match when split the other way, or about ten to the inch. These machines cost about $50, and the work goes ahead like a young sawmill, by simply turning a crank as shown in the figure.



MATCH SPLITTING MACHINE.

A A shows two standards bolted upon a base plank, four feet in length; these standards support a shaft with crank and balance wheel D, which is two feet in diameter; the shaft has upon it an oval wheel G, which sinks the knife F, twice in each revolution, the knife passing down through a space in a thin iron strip, H, standing out from the two blocks C C, under which the match block passes by the drawing of the chain seen to pass over a small drum P, upon the shaft of the rag wheel B, the notches being only ¼ inch apart, and fed up by the hand M, attached to the iron frame L, being kept back to the cam wheel E, which has two swells upon it, by a light spring which is not shown. The hand M, is kept down into the cogs or notches by the little spiral wire spring K; the match block to be split sets in the frame forward of the block I, which has a pin in it to draw back the frame. When the block of matches is split, this frame goes forward to touch a catch, the same as a sawmill, which lets another spring not seen raise the hand M, when the feeding operation ceases. The frame is then drawn back and the same repeated. As the match is split they open and require a rounding mortise made through the base plank between the blocks C C, which allows them to remain in a half circular form—the knife is raised by a line attached to a spring pole T, the knife is screwed upon a piece of cast iron which works in the guide N, having the back end firmly fastened by a bolt through the standard O. This knife stands at right angles with the shaft. When the matches are split and sufficiently dry to work upon, they are dipped in melted brimstone, kept hot, and the match also kept hot on a sheet iron stove, and all the brimstone is thrown off which can possibly be by jerking the block with the hand. If any brimstone remains upon the end it must be scraped off before dipping into the match composition. Without the chlorate, the composition makes a first-class "Friction Match." It ought to be known, however, that the match business is an unhealthy occupation, from the poisonous effects of the phosphorus.

STEAM BOILERS—To Prevent Lime Deposits.—Put into your cistern or tank, from which the boiler is fed, a sufficient amount of oak tan bark, in the piece, to color the water rather dark; run four weeks and renew.

This plan has been much used in the limestone sections of Washington, O., giving general satisfaction.

2. **Ohio River Plan.**—Sprouts from barley in malting are recommended by Capt. Lumm, part owner of a steamboat and engineer on the Ohio and Mississippi rivers, to prevent the deposit of lime upon boilers, and he says tightens up old leaky boilers, also. It may be used in quantities of from 3 pts, to 2 or 3 qts., according to the size of the boilers.

When it is put in you must know the quantity of water in the boiler, for unless you heat up quite slow it causes a foaming of the water, and might deceive the engineer about the amount of water in the boiler. but if heat up slow there is no danger of this deception.

3. To Prevent Explosion, With the Reason Why They Explode.—At a recent meeting of the Association for the Advancement of Science, Mr. Hyatt, of New York, presented what we believe to be the true cause. He presented the following table, showing the rapidity with which pressure is doubled by only a slight increase of heat.

At 212 degrees of heat water begins to boil; at 868 degrees iron becomes of a red heat:

212 degrees of heat,	15 pounds to square inch.
251 degrees of heat,	30 pounds to square inch.
294 degrees of heat,	60 pounds to square inch.
342 degrees of heat,	120 pounds to square inch.
398 degrees of heat,	240 pounds to square inch.
464 degrees of heat,	480 pounds to square inch.
868 degrees of heat,	7680 pounds to square inch.

It was stated by Mr. Hyatt that from experiments he had made, this great increase of pressure could be obtained in six to seven minutes with an engine at rest. This rapid doubling of pressure, with but a small increase of heat, is due to the conversion of what is termed latent heat in steam into sensible heat. If we immerse a thermometer into boiling water it stands at 212; if we place it in steam immediately above the water, it indicates the same temperature. The question then arises, what becomes of all the heat which is communicated to the water, since it is neither indicated by the water nor by the steam formed from it? The answer is, it enters the water and converts it into steam without raising its temperature. One thousand degrees of heat are absorbed in the conversion of water into steam, and this is called its latent heat. And it is the sudden conversion of latent heat into sensible heat that produces the explosion. If an engine is stopped, even if there is but a moderate fire, if the escape valve is closed, there is a rapid absorption of accumulation of latent heat. The pressure rises with great rapidity, and when the engineer thinks everything is safe, the explosion comes.

That this is the true cause of nearly all the explosions that occur, will be plain to everyone who will look at the relations between latent and sensible heat. Professor Henry and Prof. Silliman, Jr., endorse this view. What, then, is the security against explosions? We know of no securities but these—a sufficiency of water in the boilers, and the escape valves open at light pressure, when the engine is at rest.—Springfield Republican.

There is no question about the foregoing explanations being founded in true philosophy; and if engineers will be governed by them, instead of by a desire to hold on to steam for the purpose of getting ahead or of keeping ahead, as the case may be, of some other boat; or on land, to save the expense of fuel, not one explosion would take place where now there is, at least, a hundred.

Awful will be the reckoning with these murderers; for in heaven's sight they are one and the same.

A series of experiments have recently been concluded on the United States Steamer Michigan, and a full but voluminous report laid before the Navy Department, upon the subject of steam expansion. It would pay all interested in steam works to obtain and read it.

PLUMS AND OTHER FRUIT—To Prevent Insects from Stinging.—Take new, dry lime, sulphur and gunpowder, equal parts, pulverized very fine, and throw it amongst the flowers when in bloom; use it freely so that all may catch a little.

This has been tried with success. Working upon the principle of pepper, to keep flies from meat. The injury to fruit being done while in blossom.

BEDROOM CARPETS—For Twelve and a Half Cents Per Yard.—Sew together the cheapest cotton cloth, the size of the room, and tack the edges to the floor. Now paper the cloth as you would the sides of a room, with cheap room paper; putting a border around the edge if desired The paste will be the better if a little gum arabic is mixed with it. When thoroughly dry, give it two coats of furniture or carriage varnish, and when dry it is done.

It can be washed; and looks well in proportion to the quality and figure of the paper used. It could not be expected to stand the wear of a kitchen for any length of time, but for bedrooms it is well adapted.

COFFEE—More Healthy and Better Flavored, For One-Fourth the Expense of Common.—Coffee, by weight or measure, one-fourth; rye, three-fourths.

Look them over separately, to remove bad grains; then wash to remove dust, draining off the water for a moment as you take it with the hands from the washing water, putting directly into the browning skillet, carefully stirring all the time, to brown it evenly. Brown each one separately; then mix evenly and grind only as used; settling with a beaten egg, seasoning with a little cream and sugar as usual.

And I do sincerely say the flavor is better, and it is 100 hundred per cent more healthy than all coffee.

You may try barley, peas, parsnips, dandelion roots, etc., but none of their flavors are equal to rye. Yet all of them are more or less used for coffee.

PICKLING FRUITS AND CUCUMBERS—Pickling Apples.—Best vinegar, 1 gal.; sugar, 4 lbs.; apples, all it will cover handsomely; cinnamon and cloves, ground, of each, 1 tablespoon.

Pare and core the apples, tying up the cinnamon and cloves in a cloth and putting with the apples, into the vinegar and sugar and cooking until done only. Keep in jars. They are nicer than preserves, and more healthy, and keep a long time; not being too sour, nor too sweet, but an agreeable mixture of the two. It will be seen below that the different fruits require different quantities of'sugar and vinegar, the reason for it is the difference in the fruit.

2. **Pickling Peaches.**—Best vinegar, 1 qt.; sugar, 4 lbs.;

peaches, peeled and stoned, 8 lbs.; spices as desired, or as for apples.

Treated every other way as apples. If they should begin to ferment at any time, simply boil down the juice; then boil the peaches in it for a few minutes only.

3. **Peaches—To Peel.**—In peeling small peaches with a knife, too much of the peach is wasted; but by having a wire cage, similar to those made for popping corn; fill the cage with peaches and dip it into boiling water for a moment then into cold water for a moment and empty out, going on in the same way for all you wish to peel. This toughens the skin and enables you to strip it off, saving much in labor, as also the waste of peach. Why not, as well as tomatoes?

4. **Pickling Plums.**—Best vinegar, 1 pt.; sugar, 4 lbs.; plums, 8 lbs.; spices to taste.

Boil them in the mixture until soft; then take out the plums, and boil the syrup until quite thick and pour it over them again.

5. **Pickling Cucumbers.**—Pick each morning; stand in weak brine three or four days, putting in mustard pods and horseradish leaves to keep them green. Then take out and drain, covering with vinegar for a week; at which time take out and ginger root, cloves, pepper and red pepper pods, of each about 1 or 2 ozs.; or to suit different tastes, for each barrel.

The pickles will be nice and brittle, and pass muster at any man's table, or market. And if it was generally known that the greenness of pickles was caused by the action of the vinegar on the copper kettle, producing a poison, (verdigris), in which they are directed to be scalded, I think no one would wish to have a nice looking pickle at the expense of **Health**; if they do, they can continue the bad practice of thus scalding; if not, just put your vinegar on cold and add your red peppers or cayennes, cloves and other spices as desired; but the vinegar must be changed once, as the large amount of water in the cucumber reduces the vinegar so much that this change is absolutely necessary, and if they should seem to lose their sharp taste again just add a little molasses or spirit and all will be right.

SANDSTONE—To Prevent Scaling by Frost.—Raw linseed oil, two or three coats.

Apply in place of paint, not allowing the first coat to get entirely dry until the next is applied; if it does, a skin is formed which prevents the next from penetrating the stone. Poorly burned brick will be equally well preserved by the same process.

SEALING WAX—Red, Black and Blue.—Gum Shellac 3 ozs.; Venice turpentine, 4 ozs.; vermillion, 2½ ozs.; alcohol, 2 ozs.; camphor gum, ½ oz. Dissolve the camphor in the alcohol, then the shellac, adding the turpentine, and finally the vermillion, being very careful that no blaze shall come in contact with its fumes, for if it does it will fire very quickly.

Blue.—Substitute fine Prussian-blue for the vermillion, same quantity.

Black.—Lamp-black only sufficient to color. Either color must be well rubbed into the mixture.

ADVICE—To Young Men and Others Out of Employment.—Advice—How few there are that will hear advice at all; not because it is advice, but from the fact that those who attempt to give it are not qualified for the work they assume, or that they endeavor to thrust it upon their notice at an inappropriate time, or upon persons over whom no control is acceded, ir claimed. But a book or paper never gives offense from any of these causes; therefore, they are always to be welcomed with a hope that real benefit may be derived from their suggestions. Whether that end will be attained in this case, I leave to the judgment of those for whom it is intended; hoping they may find themselves sufficiently interested to give it a careful perusal and candid consideration. And although my remarks must, in this work, be necessarily short, yet every sentence shall be a text for your own thoughts to contemplate and enlarge upon; and perhaps, in some future edition of the work, I may take room and time to give the subject that attention which is really its due; and which would be a pleasure to devote to its consideration.

First, then, let me ask why are so many young men and other persons out of employment? The answer is very positive as well as very plain. It is this—indolence, coupled with a determination that they will do some great thing, only. And because that great thing does not turn up without effort, they are doing nothing. The point of difficulty is simply this: they look for the end, before the beginning. But just consider how few there are that really accomplish any great thing, even with a whole life of industry and economical perseverance. And yet most of our youth calculate that their beginning shall be amongst the greats. But as no one comes to offer them their expectations, indolence says wait; and so they are still waiting. Now mind you, as long as your expectations are placed upon a chance offer of something very remunerative, or upon the assistance of others, even in a small way, so long will you continue to wait in vain. At this point, then, the question would arise, what can be done? and the answer is equally plain with the other. Take hold of the first job you can find, for it will not find you. No matter how insignificant it may be, it will be better than longer idleness; and when you are seen doing something for yourselves, by those whose opinions are worth any consideration, they will soon offer you more and better jobs; until, finally, you will find something which agrees with your taste or inclination, for a life business. But remember that the idle never have good situations offered them. It is the industrious and persevering only, who are needed to assist in life's great struggle.

There are a few lines of poetry called "The Excellent Man," which advocates the principles I am endeavoring to advance, so admirably that I cannot deny myself the pleasure of quoting them. The old proverb, "God helps those who help themselves," is as true as it is old, and after all that is said and done, in this country, if in no other, a man must depend on his own exertions, not on patronage, if he would have or deserve success:

"They gave me advice and counsel in store,
Praised me and honored me more and more.
Said that I only should 'wait awhile,'
Offered their patronage, too, with a smile.

But with all their honor and approbation,
I should long ago have died of starvation,
Had there not come an *excellent* man,
Who, bravely to help me along began.

Good-fellow! he got me the food I ate,
His kindness and care I shall never forget;
Yet I cannot embrace him—though other folks can,
For I, myself, am this excellent man!"

Up, then, and at it, for there is

'Knitting and sewing, and reaping and mowing,
And all kinds of work for the people to do,
To keep themselves busy, both Abram and Lizzie;
Begin, then, ye idle, there is plenty for you.

When you have found a situation or a job of work, prove yourself honest, industrious, persevering, and faithful in every trust, and no fears need be apprehended for your final success. Save a part of your wages as a sinking fund, or rather as a floating fund, which shall keep your head above water in a storm; or enable you, at no distant day, to commence a business of your own.

A poor orphan boy, of fourteen, once resolved to save half of his wages, which were only four dollars per month, for this purpose; and actually refused, even in sickness, although really suffering for comforts, to touch this business fund. He was afterwards the richest man in St. Louis.

His advice to young men was always this: "Go to work; save half your wages; no matter how small they may be, until you have what will enable you to begin what you wish to follow; then begin it, stick to it; be economical, prudent, and careful, and you cannot fail to prosper."

My advice is the same, with this qualification, however; that in choosing your occupation, you should be governed by the eternal principles of right! never choosing that which, when done, injures a fellow creature more than it can possibly benefit yourself—I mean the liquor traffic. But with the feeling of St. Paul, when he saw the necessity of doing something different from what he had been doing, he cried out, "Lord, what wilt thou have me to do?" Ask your own tastes, being governed by conscience, under the foregoing principles; knowing that if a person has to learn a trade or business against his own inclination, it requires double diligence to make only half speed, and hardly ever meeting with success.

The question to be settled, then, is this: Shall I work the soil: Shall I be a mechanic, teacher, divine, physician, lawyer, merchant, druggist, or grocer, or shall it be something else?

Whenever you make up your mind what it shall be, make it up, also, to be the best one in that line of business. Set your mark high, both in point of moral purity and literary qualifications.

If you choose any of the occupations of trade, you must save all that it is possible for economy and prudence to do, for your beginning.

But if you choose one of the learned professions, you must work with the same care and prudence until you have accumulated sufficient to make a fair commencement in your studies; then prosecute them in all faithfulness as far as the accumulated means will advance you; realizing that this increase of knowledge will give you increased power in obtaining the further means of prosecuting your studies, necessary to qualify you to do one thing only in life.

Nearly all of our best men are self-made, and men of one idea, i. e., they have set themselves to be mechanics, physicians, lawyers, sculptors, etc., and have bent their whole energies and lives to fit themselves for the great work before them. Begin, then; offer no excuse. Be sure you are on the right track, then go ahead:

"Live for something;" slothful be no longer, look around for some employ;
Labor always makes you stronger, and also gives you sweetest joy.
Idle hands are always weary; faithful hearts are always gay;
Life for us, should not be dreary; nor can it, to the active, every day.

Always remembering that industry, in study or labor, will keep ahead of his work, giving time for pleasure and enjoyment; but indolence is ever behind; being driven with her work, and no prospect of its ever being accomplished.

When you have made your decision, aside from what time you must necessarily devote to labor, let all possible time be given to the study of the best works upon the subject of your occupation or profession, knowing that one hour's reading in the morning, when the mind is calm and free from fatigue, thinking and talking with your companions through the day upon the subjects of which you have been reading, will be better than twice that time in evening reading, yet if both can be enjoyed, so much the better; but one of them must certainly be occupied in this way.

If you choose something in the line of mercantile or trade life, do not put off, too long, commencing for yourself. Better begin in a small way and learn, as your capital increases, how to manage a larger business.

I knew a gentleman to commense a business with five dollars, and in two weeks his capital was seventeen dollars, besides feeding his family.

I knew one also to begin with sixty dollars, and in fifteen months he cleared over four hundred and fifty dollars, besides supporting his family; then he sold out and lost all before he again got into successful business.

No person should ever sell out, or quit an honorable paying business.

Those who choose a professional life, will hardly find a place in the West, equal to the University of Michigan, Ann Arbor, to obtain their literary qualifications. An entrance fee of Ten Dollars, with Five Dollars yearly, pays for a full Literary, Law, Medical, or Civil Engineering course; the first requiring four, the two next, two and the last, three years. (See Frontispiece.)

Or, in the words of the Catalogue: "The University, having been endowed by the General Government, affords education, without money and without price. There is no young man, so poor, that industry, diligence, and perseverance, will not enable him to get an education here.

"The present condition of the University confirms this view of its character. While the sons of the rich, and of men of more or less property, and, in large proportion, the sons of substantial farmers, mechanics, and merchants, are educated here, there is also a very considerable number of young men dependant entirely on their own exertions—young men who, accustomed to work on the farm, or in the mechanic's shop, have become smitten with the love of knowledge, and are manfully working their way through, to a liberal education, by appropriating a portion of their time to the field or the workshop."

Persons wishing to qualify themselves for teaching in this State, will find the Normal School, Ypsilanti, undoubtedly preferable.

And that none may excuse themselves from an effort because somewhat advanced in life, let me say that Doctor Eberle, who wrote several valuable medical works, did not begin his medical studies until forty-five years of age; and, although I could mention many more, I will only add that I, myself, always desired to become a physician, yet circumstances did not favor nor justify my commencement until I was thirty-eight. See the remarks following "Eye Water."

There is no occupation, however, so free and independent as that of the farmer; and there is none, except parents, capable of using so great an influence for good or for evil, as that of teacher.

All might and ought, to a greater or less extent, be farmers; but all cannot be teachers. Then let these whose taste inclines them to teach, not shrink the responsibility, but fully qualify for the work; learning also the ways of Truth and Righteousness for themselves; teaching it through the week-school, by action as well as by word, and in the Sabbath-school, fail not to take their stand for the right, like our President elect; then when it comes your turn to assist in the government of the State, or Nation, the people will come to your support as you do to your work—as they have just done to his (1860); feeling, as now, that the government must be safe in the hands of those who love God—deal honestly with their fellows; and who, in remembering the Sabbath to keep it holy themselves, are not ashamed —nor forget, to teach the children to love the same God, and reverence His Word. Only think—a Sabbath-school Teacher—a Rail-splitter—a Boat-man, President of the United States!

Who will hereafter be afraid of common labor; or, let indolence longer prevent their activity? when it is only those who begin with small things, and persevere through life, that reach the final goal of greatness; and, as in this case, are crowned with the greatest honor which man can receive—the confidence of his Nation.

Then let Industry take the place of Indolence, beginning to be great, by grappling with the small things of life—be faithful to yourself, and, you may reasonably expect, the end shall, indeed, be great.

And although it could not be expected, in a work of this kind, that much could, or would be said, directly, regarding a future life, yet I should be recreant to duty if I did not say a word more upon that subject. It shall be only a word. Be as faithful to GOD as I have recommended you to be to yourselves, and all things pertaining to a future will be equally prosperous and glorious in its results.

GRAMMAR IN RHYME—For the Little Folks.—It is seldom that one sees so much valuable matter as the following lines contain, comprised in so brief a space. Every young grammarian, and many older heads, will find it highly advantageous to commit the "poem" to memory; for with these lines at the tongue's end, none need ever mistake a part of speech:

1. "Three little words you often see
Are articles— a, an, and the.
2. A Noun's the name of any thing,
As school, or garden, hoop, or swing.
3. Adjectives tell the kind of Noun,
As great, small, pretty, white, of brown.
4. Instead of Nouns the Pronouns stand—
Her head, his face, your arm, my hand.
5. Verbs tell of something to be done—
To read, count, sing, laugh, jump or run.
6. How things are done, the adverbs tell,
As slowly, quickly, ill, or well.
7. Conjunctions join the words together—
As men and women, wind or weather.
8. The Preposition stands before
A Noun, as in, or through a door.
9. The Interjection shows surprise,
As oh! how pretty—ah! how wise.
The whole are called Nine Parts of Speech,
Which reading, writing, speaking, teach.

MUSICAL CURIOSITY—Scotch Genius in Teaching.—A Highland piper, having a scholar to teach, disdained to crack his brains with the names of semibreves, minims, crochets and quavers. "Here, Donald," said he, "tak yer pipes, lad, and gie us a blast. So—verra weel blawn, indeed; but what's a sound, Donald, without sense? Ye maun blaw forever without making a tune o't, if I dinna tell you how the queer things on the paper maun help you. You see that big fellow wi' a round, open face? (pointing to a semibreve between two lines on a bar). He moves slowly from that line to this, while ye beat ane wi' yer fist, and gie us a long blast. If, now, ye put a leg to him, ye mak' twa o' him, and he'll move twice as fast; and if ye black his face, he'll run four times faster than the fellow wi' the white face; but if, after blacking his face, ye'll bend his knee or tie his leg, he'll hop eight times faster than the white-faced chap I showed you first. Now, whene'er ye blaw yer pipes, Donald, remember this—that the tighter those fellows' legs are tied, the faster they'll run, and the quicker they're sure to dance."

That is, the more legs they have bent up, contrary to nature, the faster goes the music.

APPENDIX TO MISCELLANEOUS DEPARTMENT.

BY THE PUBLISHER.

To Purify Sinks and Drains.—To one pound of common copperas add one gallon of boiling water, and use when dissolved. The copperas is deadly poison and should always be carefully labeled if kept on hand. This is one of the best possible cleansers of pipes and drains.

To Wash Greasy Tin and Iron.—Pour a few drops of ammonia into every greasy roasting pan, after half filling the pan with warm water. A bottle of ammonia should always be kept on hand near the sink for such uses; never allow the pans to stand dry, for it doubles the labor of washing, but pour in water and use the ammonia, and the work is half done.

To Clean Carpets.—Shake and beat the carpets well; lay them upon the floor and tack them firmly; then, with a clean flannel, wash them over with one quart of bullock's gall mixed with three quarts of soft, cold water, and rub it off with a clean flannel or house cloth. Any particular dirty spot should be rubbed with pure gall. Carpets cleaned in this way look bright and fresh.

Treatment of Oilcloth.—Oilcloth ought never to be wetted, but merely rubbed with a flannel and polished with a brush of moderate hardness, exactly like a mahogany table; and by this means the fading of the colors and the rotting of the canvas are entirely avoided.

Flannels.—Flannel should always be washed with white soap, and in warm but not boiling water.

Damp Closets.—For a damp closet or cupboard, which is liable to cause mildew, place in it a saucerful of quicklime, and it will not only absorb all apparent dampness, but sweeten and disinfect the space. Renew the lime once a fortnight; if the place be very damp, renew it as often as it becomes slaked. Lime may be used in the same way for water closets and outbuildings.

Damp Walls.—Line the damp part of the wall with sheet lead, rolled very thin, and fasten up with small copper nails; it may be immediately covered with paper, and so hidden from view. The lead is not to be thicker than that which lines tea chests.

Whitewash for Rooms.—Take four pounds and two ounces of common glue; let the glue stand in cold water over night, then heat it until dissolved and pour it hot into the whiting mixed with cold water. This makes a nice, smooth whitewash.

Whitewash that Will Not Rub Off.—Mix up half a pailful of lime and water ready to put on the wall; then take one-fourth pint of flour, mix it with water, then pour on it sufficient quantity of boiling water to thicken it, and pour it while hot into the whitewash; stir all well together and use.

Painting and Papering.—Painting and papering are best done in cold weather, especially the former, for the wood absorbs the oil of paint much more in warm weather, while in cold weather the oil hardens on the outside, making a coat which will protect the wood instead of soaking into it.

Milk Paint.—Mix water lime with skim milk to proper constituency to apply with brush, and it is ready for use; it will adhere well to wood, smooth or rough, to brick, mortar, or stone, where oil has not been used, and it forms a very hard substance as durable as the best of paint; any color which is desirable may be had by using colors dissolved in whisky.

To Clean Brass.—Finely-rubbed bichromate of potassa, mixed with twice its bulk of sulphuric acid, and an equal quantity of water, will clean the dirtiest brass very quickly.

To Clean Bricks.—To remove the green that gathers on bricks, pour over them boiling water in which any vegetables, not greasy, have been boiled; repeat for a few days and the green will disappear. For the red wash, melt one ounce of glue in one gallon of water; while hot, add alum the size of an egg; one-half pound Venetian red, one pound Spanish brown; if too light, add more red and brown; if too dark, water. By experimenting, the color desired may be had.

To Polish Nickel Plate.—Scour with pulverized borax; use hot water and very little soap; rinse in hot water, and rub dry with a clean cloth. By this quick process a bright polish may be had.

Cement for Broken China or Glass.—Dissolve one-half ounce of gum arabic in a wine-glassful of boiling water; add plaster of paris sufficient to form a thick paste, and apply it with a brush to the broken parts; being nearly colorless, it is better than liquid glue or other cements.

To Cleanse Brasses, Tins, Coppers, Etc.—Mix rotten-stone, soft soap, and oil of turpentine to the consistency of stiff putty. The articles should first be washed with hot water to remove grease; then rub the metal with the mixture, mixed with a little water; then rub off briskly with a dry, clean rag or leather, and a beautiful and durable polish will be obtained.

To Remove Iron Stains From Marble.—Wet the spots with oil of vitrol, or oxalic acid diluted in alcohol, or with lemon juice, and after a quarter of an hour, rub them dry with a soft linen cloth.

To Clean Marble.—Use three ounces of pearl ash, one pound of whiting, and three pints of water well mixed together, and boil for ten minutes; rub it well over the marble and let it remain twenty-four hours, then rub it off, and dry with a clean cloth.

To Clean Woodwork.—Where painted wainscot or other woodwork requires cleaning, fuller's earth will be found cheap and useful, and, on wood not painted, it forms an excellent substitute for soap. Where extreme nicety is required, use a mixture of one pound of soft soap, two ounces of pearl ash, one pint of lard, and one pint of table beer; simmer these substances in a pipkin over a slow fire and let them be well mixed. The mode of application is to put a small quantity in flannel; rub it on the wainscot, wash it off with warm water, and dry thoroughly with a linen cloth. This will clean painted woodwork without removing the paint.

To Clean Gilt Frames.—When the gilt frames of pictures or looking-glasses, or the gilt moldings of rooms have specks of dirt upon them, from flies or other causes, they can be cleaned with the white of an egg gently rubbed on with a camel hair pencil.

To Cleanse Picture Frames.—Black walnut frames will become dull and rusty looking. They may be renewed by first brushing thoroughly with a stiff brush to remove dust, and then apply pure linseed oil with a proper brush, or with a piece of new bleached muslin.

To Remove Moths From Furniture.—Moths may be exterminated or driven from upholstered work by sprinkling this with benzine. The benzine is put in a small watering pot, such as is used for sprinkling houseplants; it does not spot the most delicate silk, and the unpleasant odor passes off in an hour or two in the air. Care must be used not to carry on this work near a fire or flame, as the vapor of benzine is very inflammable. It is said that a little spirits of turpentine added to the water with which floors are washed will prevent the ravages of moths.

Perfume and a Preventive Against Moths.—Take one ounce of Tonquin beans, caraway seed, cloves, mace, nutmeg, cinnamon, well ground; add six ounces of Florentine orris root; mix well, and put in bags among your clothes.

To Blacken Hearths.—Mix black lead and whites of eggs well beaten together; with a painter's brush wet the hearth thoroughly all over; then scrub it bright with a hard brush.

To Remove Fly Spots.—Dip a camel's hair brush into spirits of wine, and apply it to remove fly spots.

Mucilage.—An excellent mucilage may be made by taking one ounce of gum tragacanth, as much corrosive sublimate as will lay on a silver five-cent piece; put it into a jar and pour over it one quart of cold,, soft water; let it stand twenty-four hours; then stir, and it is ready for use, and it will keep as long a time as is desired.

Liquid Glue.—Dissolve 33 parts of best glue, in a steam bath, in 36 parts of water; then add gradually, stirring constantly, 3 parts of nitric acid, or enough to prevent hardening when cold.

How to Keep Meat.—Meat is much better for family use when at least one week old in cold weather. Hang up a quarter of meat with the cut end up, the reverse of the usual way, and the juice will remain in the meat and not run to the cut end and dry up by evaporation.

To Restore and Preserve Flowers.—Faded flowers may be generally more or less restored by immersing them half way up their stems in very hot water, and allowing them to remain in it until it cools, or they have recovered. The scalded portion of the stem must then be cut off, and the flowers placed in clear, cold water. In this way a great number of faded flowers may be restored; but there are some of the more fugacious kinds on which it proves useless. Flowers may also be preserved and their tints deepened by adding to the water a little solution of carbonate of ammonium and a few drops of phosphate of sodium. The effect of this in giving the flowers a deeper color and a stronger appearance is quite wonderful; and, by cutting off every other day about half an inch of the stems of the flowers with a sharp knife, they may be kept as long as their natural life would last in the fields or woods.

To Clean Hair Brushes.—Dissolve a piece of soda in some hot water, allowing a piece the size of a walnut to a quart of water; put the water into a basin, and, after combing out the hair from the brushes, dip them, bristles downward, into the water and out again, keeping the backs and handles as free from water as possible. Repeat this until the bristles look clean; then rinse the brushes in a little cold water; shake them well, and wipe the handles and backs with a towel, but not the bristles, and set the brushes to dry in the sun, or near the fire. Wiping the bristles of a brush makes them soft, as does also the use of soap.

To Clean Combs.—If it can be avoided never wash combs, as the water often makes the teeth split, and the horn, if wet, often becomes rough. A small brush can be bought, made purposely for cleaning combs; with this the comb should be well brushed, and afterwards wiped with a cloth.

Bandoline.—Soak starch or Irish moss (whichever is handy) in rose water until dissolved and smooth; if you wish it to be pink, color it with a little pounded cochineal.

Oil of Roses For the Hair.—Attar of roses, one drachm; oil of rosemary, one drachm; olive oil, one quart, mixed together. It may be colored red by steeping a little alkanet root in the oil (with heat) before scenting it.

Milk of Roses.—Put into a small bottle two ounces of rose water, one teaspoonful of oil of sweet almonds, ten drops of oil of tar. Shake the bottle until the whole is combined; it makes a nice and perfectly harmless cosmetic to apply to the skin after washing.

Marrow Pomade For the Hair.—Marrow, a quarter pound; lard, a quarter pound; castor oil, six ounces; salad oil, six ounces; palm oil, half ounce; scent with oil of bergamot; melt the lard and palm oil together; then strain it, and strain the marrow; mix all well together until nearly cold and put in pots.

Perfume For Linen.—Lavender flowers, half pound (free from stalk); dried thyme and mint, of each, half ounce; ground cloves and caraway, of each, a quarter ounce; common salt dried, one ounce; mix well together, and put into cambric or silk bags.

Chapped Hands.—Unsalted lard, a quarter pound; yolks of two new-laid eggs, rose water to mix well; add a large spoonful of honey, and enough of fine oatmeal or almond flour to work it into a paste.

Chapped Lips.—Borax, benjamin, and spemaceti, of each a quarter ounce, a pinch of alkanet root, a large juicy apple chopped, a bunch of black grapes bruised, a quarter pound of unsalted butter, two ounces of beeswax; put all into a new tin saucepan; simmer gently till the wax, etc., are dissolved, and then strain it through a linen; when cold, melt it again and pour it into small pots or boxes; or, if to make in form of cakes, use the bottom of teacups.

Excessive Sweating of the Hands or Feet.—A useful prescription for excessive sweating of the hands and feet, is: Carbolic acid, one part; burnt alum, four parts; starch, two hundred parts; French chalk, fifty parts; oil of lemon, two parts; sprinkle on feet, or inside of stockings or gloves, etc.

Chilblains.—Wash the chilblains with tincture of myrrh diluted in a little water.

Burns.—Lime water beaten up with sweet oil is an excellent ointment for painful burns.

Hemorrhoids or Piles.—They may generally be prevented from developing by proper attention to the bowels. Eat freely of laxative food, such as rye bread, Indian meal in any form with molasses, rye pudding, coarse or unbolted wheat bread, potatoes, fruit, stewed peaches, etc.

Treatment.—When the tumors become very painful and are considerably inflamed, apply a poultice made of pulverized slippery elm bark and milk, or a poultice made of common lobelia inflata and fresh butter in the proportion of one part of the former to two of the latter; simmer and strain; apply two or three times a day.

The following remedy is used with remarkable success by the United States government in the army and navy, and will cure almost any case of long standing in twenty-one days:

Rex Citrine Ointment	1 ounce
Rosinous Ointment	1 ounce

Mix, apply a small quantity to the rectum, rub in well night and morning every other day.

Caution.—Follow directions explicitly; if used more freely than directed it will burn.

Sprains.—Sal ammoniac, half an ounce; rose water, half pint; cologne water, a tablespoonful. Rags wet with the lotion should be laid on the injured part and changed when they get dry.

Sunburn.—This may occur in grade from a slight reddening of the face to an inflammation attended with blistering. Soothing applications and avoiding the cause are the indications. Oxide of zinc ointment, cosmoline and zinc ointment, in equal parts, or dusting powders of starch or rice flour, are useful. A solution of subnitrate of bismuth, or bicarbonate of soda, has some value for removing freckles. Powdered nitre, moistened with water and applied to the face night and morning, has also been recommended for removing freckles.

Mexican Mustang Liniment.—Take 2 ounces petroleum, 1 fluid ounce ammonia water, and 1 fluid drachm brandy.

Mix.

How to Keep Ice in Summer.—No refrigerator or ice box will prevent, or even retard the melting of the ice, which does not combine the following conditions: It must have double sides, bottom, and lid, with the space between the two casings filled with some non-conducting substance, in order to exclude the external temperature; and the inner lid or cover should be practically, if not hermetically, airtight, in furtherance of the same result. If external air enters, it will bring its own temperature with it. There should be also a drainage pipe at the bottom to carry off, instantaneously, every drop of water formed by the melting of the ice, and this pipe should either be fitted with a trap or curved in such a manner as to prevent the cold air from escaping. It is even more indispensable to carry off every drop of the water than it is to exclude the air —a view not generally entertained by consumers of the article, but which, according to experiments made, seems to be fully demonstrated. Thus, on exposing a piece of ice weighing, say 25 pounds, to the air, at a temperature of 75°, but so placed that it is perfectly drained, it will be found to have scarcely disappeared at the end of 24 hours. Wrap the same piece in three or four thicknesses of blanket or flannel, and place it in a small tub exposed to the same temperature, and as the water filters through the blanket the ice will stand in its own water, and will be all dissolved in five or six hours. Wrap the same piece of ice carefully in a blanket, and place it on a grating, or on four crossed sticks, so that no water can accumulate underneath, and at the end of three or even four days it will not have entirely melted.

INSTRUCTIVE TABLES.

TABLE SHOWING THE DEATH RATE PER 1000 OF EACH SEX IN EACH OF THE THREE CONDITIONS OF LIFE.

AGES.	MALES.			FEMALES.		
	Unmarried.	*Married.*	*Widows.*	*Unmarried.*	*Married.*	*Widowers.*
20-25	12.88	8.92	40.60	8.32	9.92	12.31
25-30	10.17	6.24	21.84	9.02	8.98	23.62
30-35	11.51	6.82	19.17	9.87	9.36	16.90
35-40	13.15	7.52	17.50	10.87	9.29	15.03
40-45	16.62	9.55	18.89	13.28	10.14	12.73
45-50	19.60	11.47	22.20	15.71	10.69	13.30
50-55	25.80	15.61	26.80	20.97	14.11	15.20
55-60	32.10	21.50	34.17	26.90	19.29	24.47
60-65	45.92	32.60	47.50	40.52	30.75	37.07
65-70	58.50	44.80	62.97	58.30	45.30	53.50

BIRTH, MARRIAGE AND DEATH STATISTICS.

The following interesting table gives a comparative view of the fertility of marriages, the legitimacy and the illegitimacy of births, and the mortality in city and country in the various European States.

Countries.	Children to One Marriage.		Infant Mortality.		Adult Mortality		Fertility of Marriage.		Illegit. to Legitimate Births.	
	City.	*Country.*	*City.*	*Country.*	*City.*	*Country.*	*City.*	*Country.*	*City.*	*Country.*
France	3.16	3.28	*35.69	*28.56	1:31.51	1:42.21	2.03	2.34	*15.13	*4.24
Netherlands	3.91	4.32	36.25	28.90	1:35.55	1:43.03	2.49	3.07	7.70	2.84
Belgium	3.80	4.17	......	......	1:34.35	1:44.31	....	....	14.59	5.88
Sweden	2.99	4.19	38.86	24.50	1:28.95	1:46.86	1.83	3.16	27.44	7.50
Denmark	3.04	3.34	29.66	22.68	1:37.41	1:49.77	2.14	2.58	16.45	10.06
Schleswig	3.50	3.69	27.42	23.42	1:35.17	1:48.49	2.54	2.83	8.38	6.37
Holstein	3.37	3.88	29.92	25.29	1:38.73	1:44.15	2.36	2.90	15.50	8.74
Saxony	4.60	4.13	39.88	34.22	1:31.10	1:34.70	2.77	2.64	15.39	14.64
Hanover	2.93	3.65	28.70	26.47	1:38.52	1:41.17	2.08	2.88	17.42	9.06
Prussia	4.00	4.44	36.02	29.47	1:27.97	1:34.46	2.56	3.13	9.80	6.60

EXPECTATION OF LIFE AT VARIOUS AGES.

Age.	*Male.*	*Fem.*	*Age.*	*Male.*	*Fem.*
0 years....	39.91	41.85	51 years....	18.90	20.09
1 years....	46.65	47.31	52 years....	18.28	19.42
2 years....	48.83	49.40	53 years....	17.67	18.75
3 years....	49.61	50.20	54 years....	17.06	18.08
4 years....	49.81	50.43	55 years....	16.45	17.43
5 years....	49.71	50.33	56 years....	15.86	16.79
6 years....	49.39	50.00	57 years....	15.26	16.17
7 years....	48.92	49.53	58 years....	14.68	15.55
8 years....	48.37	49.98	59 years....	14.10	14.94
9 years....	47.74	48.35	60 years....	13.53	14.34
10 years....	47.05	47.67	61 years....	12.96	13.75
11 years....	46.31	46.95	62 years....	12.41	13.17
12 years....	45.54	46.20	63 years....	11.87	12.60
13 years....	44.76	45.44	64 years....	11.34	12.05
14 years....	43.97	44.68	65 years....	10.82	11.51
15 years....	43.18	43.90	66 years....	10.32	10.98
16 years....	42.40	43.14	67 years....	9.83	10.47
17 years....	41.64	42.40	68 years....	9.36	9.97
18 years....	40.90	41.67	69 years....	8.90	9.48
19 years....	40.17	40.97	70 years....	8.45	9.02
20 years....	39.48	40.29	71 years....	8.03	8.57
21 years....	38.80	39.63	72 years....	7.62	8.13
22 years....	38.13	38.98	73 years....	7.22	7.71
23 years....	37.46	38.33	74 years....	6.85	7.31
24 years....	36.79	37.68	75 years....	6.49	6.93
25 years....	36.12	37.04	76 years....	6.15	6.56
26 years....	35.44	36.39	77 years....	5.82	6.21
27 years....	34.77	35.75	78 years....	5.51	5.88
28 years....	34.10	35.10	79 years....	5.21	5.56
29 years....	33.43	34.46	80 years....	4.93	5.26
30 years....	32.76	33.81	81 years....	4.66	4.98
31 years....	32.09	33.17	82 years....	4.41	4.71
32 years....	31.42	32.53	83 years....	4.17	4.45
33 years....	30.74	31.88	84 years....	3.95	4.21
34 years....	30.07	31.23	85 years....	3.73	3.98
35 years....	29.40	30.59	86 years....	3.53	3.76
36 years....	28.73	29.94	87 years....	3.34	3.56
37 years....	28.06	29.29	88 years....	3.16	3.36
38 years....	27.39	28.64	89 years....	3.00	3.18
39 years....	26.72	27.99	90 years....	2.84	3.01
40 years....	26.06	27.34	91 years....	2.69	2.85
41 years....	25.39	26.69	92 years....	2.55	2.70
42 years....	24.73	26.03	93 years....	2.41	2.55
43 years....	24.07	25.38	94 years....	2.29	2.42
44 years....	23.41	24.72	95 years....	2.17	2.29
45 years....	22.76	24.06	96 years....	2.06	2.17
46 years....	22.11	23.40	97 years....	1.95	2.06
47 years....	21.46	22.74	98 years....	1.85	1.96
48 years....	20.82	22.08	99 years....	1.76	1.86
49 years....	20.17	21.42	100 years....	1.68	1.76
50 years....	19.54	20.75			

RATES OF MORTALITY.

The Carlisle tables, showing how many persons out of 10,000 will die annually, on the average, until all are deceased. These tables are used by all Life Insurance Companies in their computation of risks, premiums, etc.

Year.	*No. Alive.*	*Deaths.*	*Year.*	*No. Alive.*	*Deaths.*	*Year.*	*No. Alive.*	*Deaths.*
At birth	10000	1539	35	5362	55	70	2401	124
1	8461	682	36	5307	56	71	2277	134
2	7779	505	37	5251	57	72	2143	146
3	7274	276	38	5194	58	73	1997	156
4	6998	201	39	5136	61	74	1841	166
5	6797	121	40	5075	66	75	1675	160
6	6670	82	41	5009	69	76	1515	156
7	6594	58	42	4940	71	77	1359	146
8	6336	48	43	4869	71	78	1213	132
9	6493	33	44	4798	71	79	1081	128
10	6460	29	45	4727	70	80	953	116
11	6431	31	46	4657	69	81	837	112
12	6400	32	47	4588	67	82	725	102
13	6368	33	48	4521	63	83	623	94
14	6335	35	49	4458	61	84	529	84
15	6300	39	50	4397	59	85	445	78
16	6261	42	51	4338	62	86	367	71
17	6219	43	52	4276	65	87	296	64
18	6176	43	53	4271	68	88	232	51
19	6133	43	54	4113	70	89	181	39
20	6090	43	55	4073	73	90	142	37
21	6047	42	56	4000	76	91	105	30
22	6005	42	57	3924	82	92	75	21
23	5963	42	58	3842	93	93	54	14
24	5921	42	59	3748	106	94	40	10
25	5879	43	60	3633	122	95	30	7
26	5836	43	61	3521	126	96	23	5
27	5793	45	62	3395	127	97	18	4
28	5748	50	63	3268	125	98	14	3
29	5698	56	64	3143	125	99	11	2
30	5642	57	65	3018	124	100	9	2
31	5585	57	66	2894	123	101	7	2
32	5528	56	67	2771	123	102	5	2
33	5472	55	68	2648	123	103	3	2
34	5417	55	69	2525	124	104	1	1

AVERAGE WEIGHT AND STATURE OF MAN.

MALES.			FEMALES.		
Age.	*Feet.*	*Pounds.*	*Age.*	*Feet.*	*Pounds.*
1 years.....	1.64	7.06	1 years.....	1.62	6.42
2 years.....	2.60	25.01	2 years.....	2.56	23.53
4 years.....	3.04	31.38	4 years.....	3.00	28.67
6 years.....	3.44	38.80	6 years.....	3.38	35.29
9 years.....	4.00	49.95	9 years.....	3.92	47.10
11 years.....	4.36	49.77	11 years.....	4.26	56.57
13 years.....	4.72	75.81	13 years.....	4.60	72.65
15 years.....	5.07	96.40	15 years.....	4.92	89.04
17 years.....	5.36	116.56	17 years.....	5.10	104.34
18 years.....	5.44	127.59	18 years.....	5.13	112.45
20 years.....	5.49	132.46	20 years.....	5.16	115.30
30 years.....	5.52	140.38	30 years.....	5.18	119.82
40 years.....	5.52	140.52	40 years.....	5.18	121.81
50 years.....	5.49	139.96	50 years.....	5.04	123.86
60 years.....	5.38	136.07	60 years.....	4.97	119.76
70 years.....	5.32	131.27	70 years.....	4.97	113.60
80 years.....	5.29	127.54	80 years.....	4.94	108.80
90 years.....	5.29	127.54	90 years.....	4.94	108.81

COMPOSITION OF THE HUMAN BODY.

ELEMENTS.	*Pounds.*	*Ounces.*	*Grains.*
1. Water, which is found in every part of the body, and amounts to	109	0	0
2. Fibrine, and like substances, found in the blood, and forming the chief solid materials of the flesh	15	10	0
3. Phosphate of lime, chiefly in bones and teeth, but in all liquids and tissues	8	12	0
4. Fat, a mixture of three chemical compounds, and distributed all through the body	4	8	0
5. Osseine, the organic framework of bones, boiled, gives gelatine. Weight	4	7	350
6. Keratine, a nitrogenous substance, forming the greater part of the hair, nails and skin; weighs	4	2	0
7. Cartilagine resembles the osseine or bone, and is a nitrogenous substance, the chief constituent of cartilage, weighing	1	8	0
8. Hæmoglobine gives the red color to blood, and is a nitrogenous substance containing iron, and weighing	1	8	0
9. Albumen is a soluble nitrogenous substance found in the blood, chyle, lymph, and muscle, and weighs	1	1	0
10. Carbonate of lime is found in the bones chiefly, and weighs	1	1	0
11. Hephalin is found in nerves and brain, with cerebrine and other compounds	0	13	0
12. Fluoride of calcium is found in teeth and bones, and weighs	0	7	175
13. Phosphate of magnesia is also in teeth and bones, and weighs	0	7	0
14. Chloride of sodium, or common salt, is found in all parts of the body, and weighs	0	7	0
15. Cholesterin, glycogen, and inosite are compounds containing hydrogen, oxygen, and carbon, found in muscle, liver, and brain and weighing	0	3	0
16. Sulphate, phosphate, and salts of sodium, found in all tissues and liquids	0	2	107
17. Sulphate, phosphates and chloride of potassium are also in all tissues and liquids	0	0	300
18. Silica, found in hair, skin and bone	0	0	30
	154	0	0

MISCELLANEOUS TRADES DEPARTMENT.

To Compute the Volume of Round Timber.—Rule. Add together the squares of diameter of greater and lesser ends and product of the two diameters. Multiply the sum by .7854 and product by one-third of length.

Example. The diameter of a log of timber is 2 feet at one end and 1½ feet at the other, and 15 feet long.

To Gild Letters on Wood.—When your sign is prepared as smooth as possible, go over it with a sizing, made by the white of an egg dissolved in about four times its weight of cold water, adding a small quantity of Fuller's earth, this to prevent the gold sticking to any part but the letters. When dry, set out the letters and commence writing, laying on the size as thinly as possible with a sable pencil. Let it stand until you can barely feel a slight stickiness; then go to work with your gold leaf, knife and cushion, and gild the letters.

Take a leaf up on the point of your knife, after giving it a slight puff into the back part of your cushion, and spread it on the front of the cushion as straight as possible, giving it another slight puff, with the heel of your knife forwards. Now cut it into the proper size, cutting with the heel of your knife forwards. Now rub the tip lightly on your hair; take up the gold on the point, and place it neatly on the letters; when they are all covered, get some very fine cotton wool, and gently rub the gold until it is smooth and bright. Then wash the sign with clean water to take off the egg-size.

To paint banners, etc., on cloth or silk, stretch the fabric upon a frame, and finish your design and lettering. Use a size made of bleached shellac dissolved in alcohol, thinned to the proper consistence; go over such parts as are to be gilded or painted, overrunning the outlines slightly, to prevent the color from spreading.

For inside work the white of an egg makes a good size; lay the gold while the size is still wet; when dry, dust off the surplus gold, and proceed with the shading, painting, etc. A little honey combined with glue makes a good size.

Varnish to Imitate Ground Glass.—To make a varnish to imitate ground glass, dissolve ninety grains of sandarach and twenty of mastic in two ounces of washed methylated ether; add, in small quantities, a sufficiency of benzine to make it dry with a suitable grain—too little making the varnish too transparent, and excess making it carpy. It is important to use washed ether, free from spirit.

Varnish For Harness.—One-half pound India-rubber, one gallon spirits of turpentine; dissolve by a little heat to make it into a jelly then take equal quantities of hot linseed oil and above mixture, and incorporate them well on a slow fire.

Varnish For Straw Hats.—Take either red or black sealing wax; to every two ounces of sealing wax, add one ounce of rectified spirits of wine; pound the wax fine, then sift it through a fine lawn sieve, till you have made it extremely fine; put it into a large phial with the spirits of wine; shake it; let it stand near the fire forty-eight hours, shaking it often; then with a brush (a hog's bristle brush) lay it all over the hat (or basket). Let it dry and then repeat the operation.

How to Paint a Carriage.—When the woodwork of a carriage comes into the shop, examine it closely, and if the grain has raised in any place, or it wants smoothing with sandpaper, be sure you do it before you prime the work, then dust it off and put on the priming coat, as given below. Be sure and have the paint go into the cracks, checks, or screw heads, so that they have at least one coat of paint over the surface which is to be puttied up.

Silver Plating Fluid.

Nitrate of Silver (Crystals)	1 ounce.
Soft Water	12 ounces.
Cyanuret of Potash	2 ounces.

Dissolve the silver in the soft water and add the Cyanuret of Potash; shake the whole together, and let it stand till it becomes clear. Have ready some half-ounce phials, and fill half full of Paris white or fine whiting; and then fill up the bottles with the liquor, and it is ready for use. The whiting does not increase the coating powder, it only helps to clean the articles, and save the silver fluid, by half filling the bottles.

Gilding Varnish.—This is a mere variety of oil gilding applied to equipages, furniture, mirrors, and picture frames, etc. The surface being highly varnished and polished before it receives the size or gold color, and after the gilding has become quite dry, a coat of spirit varnish, fumed with the chafing dish as above, is applied, followed by two, three or more coats of the best Copal varnish, at intervals of three or four days each. The whole is lastly carefully polished with tripoli and water.

To Gild Silver With Gold.—Beat a dollar thin, and dissolve it in two ounces of aquaregia; dip clean rags in it and let them dry; burn the rags and with the tinder thereof rub the silver with a little spittle; be sure first that the silver be clean from grease.

The liquid used by tinsmiths and other workmen to cause soft solder to adhere to copper, brass and even iron, about which some maintain a secrecy, is merely a crude chloride of zinc. To make it put a little muriatic acid into a wide-mouthed bottle of twice the capacity. Set this out of doors, on account of the odor, and add zinc cut in strips, so long as any is dissolved. In soldering copper, brass or iron scrape the spot bright, place upon it a drop or two of this liquid, and apply solder in the usual manner.

Turkish Cement.—1. "The jewelers of Turkey, who are mostly Armenians, (we are informed by the most respectable and intelligent traveler, Mr. Eton, formerly a consul in that country, and author of a Survey of the Turkish Empire), have a singular method of ornamenting watch cases, etc., with diamonds and other precious stones, by simply glueing or cementing them on. The stone is set in silver or gold, and the lower part of the metal made flat, or to correspond with the part to which it is to be fixed; it is then warmed gently, and has the glue applied, which is so very strong, that the parts thus cemented never separate; this glue, which will strongly unite bits of glass, and even polished steel, and may of course be applied to a vast variety of useful purposes, is thus made:

Dissolve five or six bits of gum mastic, each the size of a large pea, in as much spirits of wine as will suffice to render it liquid, and, in another vessel, dissolve as much isinglass, previously a little softened in water, (though none of the water must be used), in French brandy or good rum, as will make a two ounce phial of very strong glue, adding two small bits of gum Galbanum or Ammoniacum, which must be rubbed or ground till they are dissolved. Then mix the whole with a sufficient heat. Keep the glass in a phial closely stopped, and when it is to be used, set the phial in boiling water. Mr. Eton observes, that some persons have sold a composition under the name of Armenian cement, in England; but this composition is badly made; it is much too thin, and the quantity of mastic is much too small."

2. Thick isinglass glue, 1 part; thick mastic varnish, 1 part. Melt the glue, mix, and keep it in a closely corked phial. For use, put the phial in hot water.

To Make Copper Into a Metal Like Gold.—Distilled verdigris, 4 ounces; Tutiæ Alexandrinæ præpartæ, 2 ounces; saltpetre, 1 ounce; Borax, ½ ounce; mix all together with oil, till they be as thick pap; then melt it in a crucible, and pour it into a fire-shovel, first well warmed.

To Make Transparent Silver.—Refined silver, 1 ounce; dissolve it in two ounces of aqua fortis; precipitate it with pugil (a quantity that may be taken up between thumb and finger) of salt, then strain it through a paper, and the remainder melt in a crucible for about half an hour, and pour it out, and it will be transparent.

To Whiten Copper Throughout.—Take thin plates of copper, as thin as a knife, heat them six or seven times, and quench them in water; then melt them, and to each pound add 4 ounces of Saltpetre and 4 ounces of Arsenic, well powdered and mixed, and first melted apart in another crucible, by gentle degrees; then take them out, and powder them; then take Venetian borax and white tartar, of each an ounce and a half, then melt these, with the former powder, in a crucible, and pour them out into some iron receiver; it will appear as clear as crystal, and is called crystallinum fixum arsenicum. Of this clear matter, broken into little pieces, throw into the melted copper (by small pieces at a time, staying five or six minutes between each injection), 4 ounces; when all is thrown in increase the fire, till all be well melted together for a quarter of an hour; then pour it out into a ningot.

Silver Plating Fluid.—Dissolve 1 ounce Nitrate of Silver (crystal) in 12 ounces of soft water; then dissolve in the water 2 ounces Cyanide of Pottasium; shake the whole together, and let stand until it becomes clear. Have ready some phials of the size wanted (½ ounce makes a good size) and fill half full of Paris White or fine Whiting, and then fill up the bottles with the liquor, and it is ready for use. Thoroughly cleanse the article from all grease and dirt and apply with soft rag or flannel; polish with chamois skin.

To Gild Steel.—Pour some of the ethereal solution of gold into a wine glass, and dip into it the blade of a new penknife, lancet or razor; withdraw the instrument, and allow the ether to evaporate; the blade will then be covered with a beautiful coat of gold. The blade may be moistened with a clean rag, or a small piece of very dry sponge dipped into the ether, and the same effect will be produced.

Gold Alloys.—The new standard for watch cases, etc., is 18 carats of fine gold and 6 of alloy. No gold of inferior quality can receive the "Hall mark," and gold of lower quality is generally described by its commercial value. The alloy may be entirely silver, which gives a green color, or entirely copper for a red color, but the copper and silver are more usually mixed in one alloy, according to the taste of the jeweler. It will be understod that these are made with fine gold, fine silver and fine copper, direct from the refiner.

Gilding Metals.—Gilding metals for common jewelry is made by taking

Copper,	4 parts.
Calamine brass,	1 part.

Wernicke's Method of Gilding Glass.—The following are the ingredients required: First—Solution of Gold. Pure gold, free from silver, is dissolved in aqua regia, the solution evaporated and the residue taken up with water, so that 1 gill contains 15.4 grains of gold. Second—Solution of sodic hydrate of 1.06 specific gravity. Third—Reducing liquid 771½ grains; sulphuric acid, 617 grains; alcohol, 539 grains water, and 770 grains powdered manganic peroxide are distilled into 770 grains of water until the bulk of the later is doubled—154 grains cane sugar, inverted by dissolving in 6-10 gill of water, and boiling with 7½ grains nitric acid. The distilled liquid, the inverted sugar, and 84-100 gill alcohol are mixed together and the mixture diluted to 1 1-10 pints. In using these solutions, 1 volume of the sodic hydrate solution is mixed with 4 volumes of the gold solution and to this mixture is added from 1.35 to 1.30 volumes of the reducing liquid. The object to be gilded is placed on the top of the solution, having the surface intended to be coated turned downwards. The temperature of the bath should be below 140 degrees Fahrenheit.

To Clean a Watch.—The best process is to simply blow your breath upon the plate or bridge to be cleaned and then use your brush with a little prepared chalk.

The wheels and bridges should be held between the thumb and finger in a piece of soft paper while undergoing the process, otherwise the oil from the skin will prevent their becoming clean. The pinions may be cleaned by sinking them several times into pieces of pith, and holes by turning a nicely shaped piece of pivot wood into them; first dry and afterwards oil a very little with watch oil. When the holes pass through jewels you must work gently, to avoid breaking them.

To Clean by Chemical Process.—Some watchmakers employ what they call the chemical process to clean and remove discoloration. It is as follows: Remove the screws and the steel parts, then dampen with a solution of Oxalic Acid and water. Let it remain a few minutes, after which immerse in a solution made of one-fourth pound of Cyanuret of Potash to one gallon of water. Let it remain 5 minutes and then rinse with cold water, after which dry in sawdust or with a brush and prepared chalk, as suits your convenience.

To Make Red Watch Hands—

Carmine,	1 ounce.
Muriate of Silver.	1 ounce.
Tinner's Japan,	½ ounce.

Mix together in an earthen vessel, and hold over a spirit-lamp until formed into a paste. Apply this to the watch hand, and then lay it in a copper plate, face side up, and heat the plate sufficiently to produce the color desired.

To Drill into Hard Steel.—Make your drill oval in form, instead of the usual pointed shape, and temper as hard as it will bear without breaking, then roughen the surface, when you desire to drill, with a little diluted Muriatic Acid, and instead of oil use Turpentine or Kerosene, in which Gum Camphor has been dissolved. In operating keep the pressure on your drill firm and steady, and if the bottom of the hole should chance to become burnished, so that the drill will not act, as sometimes happens, again use diluted acid as before; then clean out the hole carefully and proceed again.

To Frost Watch Movements—

Nitric Acid,	1 ounce.
Muriatic Acid,	1 ounce.
Common Table Salt,	1 ounce.

Mix.

Sink the article to be frosted in the above compound.

On removing from the Acid, place it in a shallow vessel containing enough sour beer to cover it, then with a fine scratch brush scour thoroughly, letting it remain under the beer during the operation. Next wash off first in pure water and then in alcohol. Gild or silver in accordance with any recipe in the plating department of this book.

To Tan Sheep Pelts with the Wool On.—Wash the pelts in warm water, and remove all useless parts and the fatty-matter from the inside, and apply the following preparation to the flesh side:

Common Salt,	¼ pound.
Alum (ground),	¼ pound.
Borax,	½ ounce.
Hot Water,	1 quart.

Rye meal sufficient to make a thick paste, and spread the mixture on the flesh side of the pelt. Fold lengthwise and allow to stand for fourteen days; then remove the paste from the surface, wash and dry. When nearly dry, scrape the flesh side with a crescent shaped knife. The softness of the pelt depends much on the amount of working it receives.

To Tan Any Kind of Fur Skins.—

Borax,	½ ounce.
Glauber Salts,	½ ounce.

Water sufficient to make a thin paste. Mix.

Cut off the useless parts, and remove the fatty matter from the inside. Soak the skin in warm water for 1 hour. Spread the above paste over the inside of the skin. Next double the skin flesh side inward, and put in a cool place. After 24 hours wash the skin clean and repeat, as before, the following mixture:

Sal Soda,	1 ounce.
Borax,	½ ounce.
Hard White Soap,	2 ounces.

Melt slowly and put in a warm place for 24 hours. Afterward apply the following:

Alum,	4 ounces.
Common Salt,	8 ounces.
Salaratus,	2 ounces.
Hot Rain Water,	sufficient.

When cool place the skin in it for 12 hours, then hang it up to dry. When dry repeat this soaking and dry two or three times. Lastly, smooth the inside with sandpaper and pumice stone.

To Destroy Insects in Gardens.—In some seasons the vegetables in our gardens are almost annihilated by worms of several species. Fall plowing or spading the ground just before frost sets in and strewing the ground with fine salt in the spring some time before the seeds are sown, are said to be the sovereign remedies against these petty but powerful depredators.

Set an onion in the center of a hill of cucumbers, squashes, melons, etc., and it will effectually banish the bugs.

If a tree or plant is affected with insects, tie up some flower of sulphur in a piece of gauze and dust the plants with it.

To Make Corn Cribs Rat-Proof.—Let the four corner posts be eight inches square, frame the sills which support the floor of the corn-cribs into posts, at a distance of 2 feet from the lower end. Before putting the frame together, taper the lower ends of the posts for the distance of 2 feet, so that at the very base the posts shall be only 4 inches square. Now, when the frame is set up, let the posts also stand on tapered rocks. If the crib needs more than these four posts to bear up the corn that will be put in it, make legs like the lower portion of these posts and set these legs under the sills. Now lay the joists or sleepers on the sills, and put on the floor, making tight, and about 3 feet from the ground. Having the door made tight, keep it shut, and no rats will get into your crib.

To Find the Number of Bushels of Apples, Potatoes, etc., in Bin or Box.—Rule: Multiply the length, breadth and depth together, all in feet, and this product by 8, pointing off one figure in the product for decimal.

Example: How many bushels of apples are there in a bin 12 feet long, 3 feet wide, and 4 feet deep:

12×3 4=144×8= 115.2.

Answer: 115.2 bushels.

To Find the Capacity of Wagon Beds.—Multiply together the length, breadth and depth in inches, and divide by 2150 (number of cubic inches in a bushel), the quotient is the number of bushels of shelled grain.

To Measure Corn in the Crib.—Rule: First. Measure the length, breadth and height of the crib, inside the rail; multiply them together and divide by 2, the result is the number of bushels of shelled corn.

Second. Level the corn so it is of equal depth throughout, multiply the length, breadth and depth together, and this product by 4, and cut off one figure to the right of the product; the other will represent the number of bushels of shelled corn.

Third. Multiply length by height, and then by width, add two ciphers to the result and divide by 124; this gives the number of bushels of ear corn.

To Measure Grain in the Granary.—Divide the cubic feet by 56, and multiply by 45, and the result will be struck measure.

How to Weigh a Hay Stack.—Measure the length and breadth of the stack; take height from the ground to the eaves, add to this last one-half of the height from the eaves to the top; multiply length by breadth, and the product by the height, all expressed in feet; divide the amount by 27, to find the cubic yards, which multiply by the number of pounds supposed to be in a cubic yard, viz.: in a stack of new hay, 132 pounds avoirdupois each; if old hay, 154 pounds each.

To Keep Dried Beef or Hams from mold, bugs and every form of decay; after curing and smoking, hang in a cool, dry place. and once in two or three weeks rub the meaty part thoroughly with cider brandy, high wines or alcohol. I will warrant it, thus prepared, to keep as good as new.

Recipe for Curing Hams.—Six gallons soft or rain water, 9 pounds rock salt, 3 ounces saltpetre, 1½ ounces pearlash, 1 quart molasses, 3 pounds brown sugar. The saltpetre and pearlash must be dissolved before putting into the pickle. Boil and skim. Rub the hams thoroughly with fine salt before putting them into the pickle, to get the blood out of them.

To Preserve Meat.—Meat of any kind may be preserved in a temperature of from 80° to 100° for a period of ten days after it has been soaked in a solution of 1 pint of salt dissolved in 4 gallons of cold water and ½ gallon of a solution of bisulphate of calcium. By repeating this process the preservation may be extended by the addition of a solution of gelatine or the white of an egg to the salt and water.

To Remove the Stain of Perspiration.—For removing the stain of perspiration a strong solution of soda is first to be applied, with a subsequent rinsing with water.

How to Whiten Flannel and Woolen Hose.—Wet the flannel yarn or hose, whatever you wish to whiten, in weak suds; wring out. Then hang on sticks or cords across a barrel with two tablespoonsful of pulverized brimstone or sulphur burning under it; cover the barrel tightly. If they are not white enough repeat the process; hang in the open-air a day, then wash and rinse in bluing water. Be careful not to have the sulphur blaze and scorch the garments.

To Clean Straw Bonnets.—First, brush them with soap and water; then with a solution of oxalic acid.

To Clean Plated Ware.—Make a paste with whiting and alcohol, apply it to the plated articles, and after it is dry rub it off with a brush, if rough, or a soft rag, if smooth.

To Clean Looking Glasses.—Take part of a newspaper, fold it small, dip it in a basin of clean, cold water, and when it is thoroughly wet squeeze it out as a sponge, and then rub it hard over the face of the glass, taking care that it is not so wet as to run down in streams. After the glass has been well rubbed with the wet paper, let it rest a few minutes and then go over it with a fresh, dry newspaper, till it looks clear and bright, which it will do almost immediately. The inside of windows may be cleaned in this way, and they will look beautifully clear.

To Clean Spice Mills.—It is often desired to grind different spices, orange or lemon peel, in the same mill, without any one being affected by another spice. Grind a teaspoonful of rice through the mill and all impurities will be removed. A coffee mill may be fitted to grind any spice in the same way, using rather more rice. The rice will, of course, be flavored by whatever may have been in the mill. It is useful to thicken soups or gravies, or sauces, when the spice is no objection.

To Keep Oil Cloths Looking Well.—Wash them once a month in skim milk and water, equal quantities of each. Rub them once in three months with boiled linseed oil. Put on very little, rub it well in with a rag, and polish with a piece of old silk. Oil-cloths will last years if kept in this way.

To Give to Boards a Beautiful Appearance.—After washing them very nicely with soda and warm water and a brush, wash them with a very large sponge and clean water. Both times observe to leave no spot untouched; and clean straight up and down, not crossing from board to board; then dry with clean cloths, rubbed hard up and down in the same way.

The floors should not be often wetted, but very thoroughly when done; and once a week dry-rubbed with hot sand and a heavy brush, the right way of the boards.

The sides of stairs or passages on which are carpets or floor cloth, should be washed with sponge instead of linen or flannel, and the edges will not be soiled. Different sponges should be kept for the above two uses; and those and the brushes should be well washed when done with, and kept in dry places.

To Scour Boards.—Lime, 1 part; sand, 3 parts; soft soap, 2 parts. Lay a little on the boards with a scrubbing brush, and rub thoroughly. Rinse with clean water and rub dry. This will keep the boards of a good color, and will also keep away vermin.

To Clean Varnished Paint.—Boil a pound of bran in 1 gallon of water an hour, and wash the paint with the bran water.

To Clean Glass Bottles.—Chop up a large potato very fine and put it in the bottle with some warm water, and shake it rapidly until it is clean. Some use shot and soda, but the potato is even more effectual.

To Cleanse Greasy Earthenware.—Stone pots or jars in which lard or fat has been kept, and yellow ware pie plates, may be cleaned by putting them in a kettle with ashes or sal soda, covering them with cold water, and allowing them to boil slowly an hour at least. When boiled enough, take them off the fire and leave them in the water until it cools.

To Clean Paint.—There is a very simple method to clean paint that has become dirty, and if our housewives should adopt it, it would save them a great deal of trouble. Provide a plate with some of the best whiting to be had, and have ready some clean warm water and a piece of flannel, which dip into the water and squeeze nearly dry; then take as much whiting as will adhere to it, apply it to the painted surface, when a little rubbing will instantly remove any dirt or grease. After which wash the part well with clean water, rubbing it dry with a soft chamois. Paint thus cleaned looks as well as when first laid on, without injury to the most delicate colors. It is far better than using soap, and does not require more than half the time and labor.

Another simple method is as follows: Put a tablespoonful of aqua ammonia in a quart of moderately hot water, dip in a flannel cloth, and with this merely wipe over the woodwork; no scrubbing will be necessary.

To Clean Soiled Ribbons and Silks.—A mixture of alcohol and highly rectified benzine is excellent for cleaning ribbons and silks. It is applied with a clean sponge. Persons who apply these liquids and mixtures to cleaning silks, etc., must be careful to do so in an apartment where there is neither fire nor lamp burning, under the penalty of an explosion.

To Remove Stains from Kid Gloves.—Stains may be removed, even from the most delicately colored gloves, by suspending them for a day in an atmosphere of ammonia. Provide a tall glass cylinder, in the bottom of which place strong aqua ammonia. Be careful to remove from the sides of the jar any ammonia that may have been spattered upon them. Suspend the gloves to the stopper in the jar. They must not come in contact with the liquid.

COUNTERFEIT MONEY.

How To Detect.—The United States Government prints all the paper money of the nation from plates made four in a set, and lettered to order, respectively, A, B, C and D. These four plates being in one piece and alike, except the single different letter on each one, are used togther, and print at each impression, on one sheet, a series or set of four bills; so each bill is always marked with the same one letter of its own plate. The counterfeiter makes but one plate, copying one bill and one letter of the genuine set. Of late, in a few exceptional cass, certain banks have been supplied with bills lettered, respectively, either E, F, G or H.

Whenever any counterfeit National Bank bill appears, the United States Redemption Agency quickly gathers up and retires all genuine bills of the same denomination, National Bank and letter, and thus leaves the field to the counterfeit. All National Bank bills of the same denomination, letter and date of the counterfeit, should be refused by every person who would avoid great risk. All bills of the same denomination and National Bank, of the other different check letters, are not counterfeited, and still continue in circulation. Counterfeiters seldom use the same plate on two or more check letters of the same denomination of any National Bank, but when the counterfeit has become notorious, they change the issue, inserting by the use of skeleton plates, the name of another and unsuspected National Bank, on which no counterfeit of that particular denomination has yet appeared. Evidently any other course would be suicidal in their case.

The principle involved is quite plain, and the method of discrimination most concise and certain. For ready reference, the counterfeited check books of each denomination of National Bank bill are placed in large type directly under the coat of arms of the States of which the counterfeits were made, and to the right of the name of each bank, after the number of the bank, in the list of counterfeits.

Liquid Slating for Blackboards—

Alcohol, strong,	4 pints.
Shellac,	8 ounces.
Lampblack,	12 drachms.
Ultramarine Blue,	20 drachms.
Powdered Rotten-stone,	4 ounces.
Powdered Pumice-stone,	6 ounces.

Mix.

To Preserve Fruit Whole.—Put them into wide-mouthed bottles, fill them up with clarified saturated syrup, put them into water in a copper kettle, and when it boils, cork them tight and keep them in a cold place. A small quantity of spirit added to each bottle will prevent fermentation.

Superior Goldsmiths' Polishing Powder.—Take 7 parts of Sesquioxide of Iron, 3 parts Sal Ammoniac.

Mix thoroughly.

Note.—The above gold and silver polishing powder has long been a guarded secret among the gold-workers of Germany who have always obtained a high price for the manufactured article. Although a very simple composition, it is undeniably excellent. It is easily and cheaply prepared by dissolving Iron in Hydrochloric Acid, and treating the Protochloride of Iron thus formed with Liquid Ammonia, as long as a precipitate is obtained. Collect the precipitate on a filter, and dry it (without washing out) at such a temperature that the adhering salammoniac shall not be volatilized. The protoxide of iron precipitated at first becomes changed into sesquioxide.

Jewelers' Turkish Cement.—Put into a bottle 2 ounces of isinglass and 1 ounce best Gum Arabic. Cover them with proof spirit; cork loosely, and place the bottle in a vessel of water; then boil it till a thorough solution is effected; then strain for use.

To Drive Fleas and Other Insects from Domestic Animals.—Mix 10 parts benzine, 5 parts common soap and 85 parts of water. Generally one or two applications are enough.

Soda Water Foam.—Beat the whites of two eggs with 12 fluid ounces of water, and dissolve in the liquid 2 ounces of white sugar and half a drachm of Salicylic Acid. Add 2 fluid ounces of this mixture to every pint of syrup.

Ladies' Shoe Dressing—

Extract logwood (best),	1 ounce.
Bichromate potash,	1 drachm.
Yellow prussiate potash,	1 drachm.
Borax, powdered,	1½ ounces.
Aqua ammonia,	1 ounce.
Shelac,	8 ounces.
Water,	½ gallon.

Dissolve extract in hot water, heating the liquid to nearly a boiling point. Then add the chromate and prussiate of potash. After a deep blue has developed, add borax; when dissolved, add the shellac and ammonia. Solution of logwood must be heated to nearly a boiling point before adding salts of potash.

Chinese Cement—

Orange Shellac, bruised,	4 ounces.
Rectified Spirits of Wine,	3 ounces.

Set the mixture in a warm place, frequently shaking it until the shellac is dissolved.

Wood naphtha may be substituted for the spirits of wine, but the unpleasant smell of the naphtha is some objection.

Diamond Cement—

Isinglass,	1 ounce.
Distilled water,	6 ounces.
Mix and boil down to	3 ounces.
Rectified Spirits,	1½ ounces.

Boil for 2 minutes, strain and add, while hot, ½ ounce of a milky emulsion of ammoniac and 5 drachms of the tincture of gum mastic.

A Cement for Stopping the Fissures of Iron Vessels.—Take 2 ounces of muriate of ammonia, 1 ounce of flowers of sulphur, and 16 ounces of cast-iron filings or turnings; mix them well in a mortar and keep the mortar dry. When the cement is wanted, take 1 part of this and 20 parts of clean iron filings or borings; grind them together in a mortar; mix them with water to a proper consistence and apply them between the joints.

This answers for flanges of pipes, etc., about steam engines.

Preventive of Sea-Sickness.—Boil 2 ounces of opium, 2 drachms extract of henbane, 10 grains of mace and 2 ounces of soap in 3 pints of water, for half an hour. When cold, add 1 quart of rectified spirits, and 3 drachms of spirits of ammonia. To be used as an embrocation.

Preservation of Milk and Cream.—Put the milk into bottles, then place them in a sauce pan with cold water, and gradually raise it to the boiling point; take it from the fire and instantly cork the bottles, then raise the milk once more to the boiling point for half a minute. Finally let the bottles cool in the water in which they were boiled. Milk thus treated will remain perfectly good for six months. Emigrants, especially those having children, will find the above hint adds much to their comfort during their voyage.

To Keep Worms from Fruit.—A small quantity of sassafras bark placed among any kind of dried fruit will keep it free from worms for years.

Carbon Tracing Paper.—Melt 6 parts of lard and one of yellow wax together, and triturate the melted mixture in a warmed mortar, with 1 part of fine lampblack. The melted mixture must be added gradually, and the trituration be thorough. While still in a fluid condition, apply with a brush or otherwise, a thin coating to ordinary tracing paper, and wipe off any excess.

To Preserve Cider.—The following recipe for preserving cider was tested by a friend, and found to be all that is claimed for it: When the cider in the barrel is in a lively fermentation, add as much white sugar as will be equal to ¼ or ¾ of a pound to each gallon of cider (according as the apples are sweet or sour). Let the fermentation proceed until the liquid has the taste to suit, then add ¼ of an ounce of sulphite (not sulphate) of lime to each gallon of cider; shake well; let it stand 3 days, and bottle for use. The sulphite should first be dissolved in a quart or so of cider before introducing it into the barrel of cider.

Preservation of Eggs.—Eggs may be preserved for any length of time by excluding them from the air. One of the cleanest and easiest methods of doing this is to pack them in clean, dry salt, in barrels or tubs, and to place them in a cool and dry situation. An old shipmaster says he has eaten eggs thus preserved that were a year old, and that had been some months aboard ship, in a tropical climate, and yet retained all the peculiar sweetness of new-laid eggs. Some persons place eggs which they wish to preserve in a netting, or in a sieve or cullender, and immerse them for an instant in a cauldron of boiling water before packing away. Sometimes eggs are placed in vessels containing milk or lime, or strong brine, or rubbed over with butter, lard or gum water; all of which act by excluding the air.

To Preserve Grease.—Boil all the scraps, rinds and bones in a weak lye, and the purer grease in clear water. Let the mixture cool, take off the cake of grease and strain it. It is well to do this occasionally, as you save it; for when kept a long time impure grease becomes offensive. You must be careful to dry off all the water before laying it away in your grease-tub if you wish to keep it sweet.

To Preserve Flowers.—Dissolve by agitation and digestion, in a closely stopped bottle, three-quarters of an ounce of clear, pale gum copal, coarsely powdered and mixed with equal weight of broken glass, in one pint of pure sulphuric ether (ethlylic ether). Dip the flowers in this liquid, remove quickly, expose to the air ten minutes, then dip again and expose as before. Repeat this dipping and drying four or five times. Most flowers thus treated will remain unaltered for some time if not handled.

Browning and Bronzing Liquid for Gun Barrels.—Aqua fortis and sweet spirits nitre, each ½ oz.; sulphate copper, 2 ozs.; water, 30 ozs.; tincture muriate iron, 1 oz.; mix.

The Hunter's Secret.—The following secret applies to all animals, as every animal is attracted by the peculiar odor in a greater or less degree, but it is best adapted to land animals, such as foxes, minks, sables, martens, wolves, bears, wild cats, etc. Take ½ lb. strained honey, ¼ drachm musk, 3 drachms oil of lavender, and 4 lbs. of tallow; mix the whole thoroughly together, and make it into 40 pills, or balls, and place one of these pills under the pan of each trap when setting it. The above preparation will most wonderfully attract all kinds of animals, and trappers and others who use it will be sure of success.

To Catch Foxes.—Take oil of amber and beaver's oil, each equal parts, and rub them over the trap before setting it. Set in the usual way.

To Catch Mink.—Take oil of amber and beaver oil and rub over the trap. Bait with fish or birds.

Secret Art of Catching Fish.—Put the oil of rhodium on the bait, when fishing with a hook, and you will always succeed.

To Cut or Bore Glass.—Any hard steel tooth will cut glass with great facility when kept well wet with camphor dissolved in turpentine. A drill bow may be used, or even the hand alone. A hole may be readily enlarged by a round file. The ragged edges of glass vessels may also be thus easily smoothed by a flat file. Flat window glass can readily be sawed with a watch spring saw by the aid of this solution. In short, the most brittle glass can be wrought almost as easily as brass by the use of cutting tools kept constantly wet with camphorated oil of turpentine.

An Alloy that Will Adhere to Iron and Steel.—It is often desirable to combine iron with brass, and thus obviate the necessity of using bolts or screws for fastening them. The unequal expansion of the metals is the great obstacle to such a combination, as it overcomes the adhesion of the surface and thus prevents a permanent union. The following alloy, however, adheres firmly to iron and steel, and can be recommended: 3 parts of tin, 39½ parts of copper, and 7½ parts of zinc.

Black Ink.—Dissolve ¼ oz. of extract of logwood in 1 pint of boiling (soft) water; then add 5 grains of prussiate and 5 grains bi-chromate of potash. To make it indelible, add ½ inch nitrate of silver to ½ pint of the ink.

Crimson Marking Ink.—

Powdered cochineal,	2 ounces
Cream of tartar,	2 ounces
Carbonate of potassa,	1 ounce
Alum,	1 ounce
Gum arabic,	1 ounce
Boiling water,	sufficient

Boil the cochineal and cream of tartar with eight ounces of water; strain; add the carbonate of potassa, and, lastly, the alum and the gum Arabic.

Should the color of the liquid partake too much of the scarlet shade, add enough carbonate of potassa to turn it to the crimson hue which you desire.

Stain for Twisted Gun Barrels.—Take of tincture of sesquichloride of iron, ½ oz.; corrosive sublimate, 1 drachm; sulphate of copper, ½ drachm; nitric acid, 1 to 1½ drachms; spirits ingredients, and let the whole stand for a month or six weeks, when it will be ready for use. The barrels to be stained should first be carefully cleaned with lime, and, this being removed, the browning mixture is laid on with a sponge five or six times a day, till the color is dark enough to suit the fancy. Once or twice a day a scratch brush should be used to remove the rough oxide and allow the acid to get a deeper bite. When it is considered that enough has been done, boiling water must be poured over the barrels for several minutes, and, while hot, rub them with flannel, and finish with a leather and a little beeswax and turpentine.

FAMOUS MEDICAL PREPARATIONS AND SUGGESTIONS BY THE PUBLISHER.

Ayer's Sarsaparilla is said to be compounded as follows: FFl. ext. sarsaparilla, 3 oz.; fl. ext. stillingia, 3 oz.; fl. ext. yellow dock, 2 oz.; fl. ext. may apple, 2 oz.; sugar, 1 oz.; potassium iodide, 90 grains; iron iodide, 10 grains. Mix.

Beef, Wine & Iron (Best quality).—Liebig's (or other) extract of beef, ½ oz.; ammonio-citrate of iron, 256 grains; spirits of orange, ½ fl. oz.; distilled water, 1½ fl. oz.; sherry wine, sufficient to make a pint. Dissolve the beef extract in the wine and the citrate of iron in the water; then mix all together.

Cod Liver Oil Emulsion.—Yolks of 2 eggs; powdered sugar, 4 oz.; ess. oil almonds, 2 drops; orange flower water, 2 oz. Mix and add an equal bulk of cod liver oil. Very excellent.

Corns, to Cure—Simple but Effective.—File the corn down close with a piece of fine sandpaper. If it grows again, repeat and it will disappear.

Summer Cholera Mixture.—Oil of anise seed, 3 drms; oil of juniper, 3 drms.; oil of cageput, 3 drms; ether, 8 drms; liquor acid of Haller, 1 drm.; tincture of cinnamon, 4 oz. Mix. Dose, 10 drops every quarter of an hour in a tablespoonful of water.

Catarrh Remedy.—Dr. Sage's famous catarrh remedy is said to be prepared as follows: ½ oz. carbolic acid, ½ oz. camphor and 10 oz. common salt. Dissolve in 4-7 litre water, and inject into the nostrils.

Citrate of Magnesia.—Magnesium carbonate, 4 oz.; citric acid, 8 oz.; sugar, 12 oz.; water, 9 pints. Flavor with ess. lemon; dissolve and filter. Fill bottles immediately, adding to each 30 grains potassium hydrogen carbonate, and cork tightly.

To Disinfect a Room After Sickness.- Burn sulphur in an iron kettle, placing on bricks in a tub of shallow water, after closing cracks in doors and windows, by pasting paper over them. Add a little alcohol to the sulphur, and keep the room closed for several hours. (The above is also efficacious in destroying insects that infect the house.) Hang bed-clothing, etc., on a line in the room to insure thorough fumigation.

Disinfectant for Cesspools, Sewers, Sinks, Vaults, Etc.—Sulphate of iron (copperas) dissolved in water, 1½ lbs. to the gal. Sprinkle liberally and often. Chloride of lime can be used to advantage in cesspools, vaults and similar localities.

Feet, Fetid, Lotion for.—Wash daily in cold water containing alum. Rub dry. Bathe once a day with solution of permanganate of potash, 80 grains to 1 pt. water.

Frostbites.—Rub with pure oil (not ess.) of peppermint; this will also prevent chilblains.

Headache Cure.—A 10 minim dose of tincture Indian hemp taken 3 times daily before attacks. Very good for sick headache, according to the London Lancet.

Headache Cure.—A famous prescription used by Dr. W. W.

Carpenter: Muriate of ammonia, 3 drms.; acetate of morphia, 1 grain; citrate of caffein, 30 grains; aromatic spirits of ammonia, 1 drm.; elixir of Guarana, 4 oz.; rose water, 4 oz. Mix; take dessert spoonful every 12 minutes.

Hostetter's Bitters.—The following is said to be their composition: Calamus root, 1 lb.; orange peel, 1 lb.; Peruvian bark, 1 lb.; gentian root, 1 lb.; colombo root, 1 lb.; rhubarb, 4 oz.; cinnamon, 2 oz.; cloves, 1 oz.; diluted alcohol, 2 gals; water, 1 gal.; sugar, 1 lb.

Pick Me Up, an Excellent Tonic and Relief for Sour Stomach.—Ess. ginger, 10 drops; aromatic spirits ammonia, ½ drm.; tinct. gentian, 1½ drms.; compound tinct. cardamoms, 3 drms.; syrup, ½ oz.; chloroform water sufficient to make up to 2 oz. Mix and drink.

Dr. Pierce's Golden Medical Discovery.—Said to be made as follows: 15 grains honey; 1 grain extract of poison lettuce; 2 grains laudanum; 100 grains diluted alcohol (64 per cent); 105 grains water. The above sells for $1.00.

Warner's Safe Cure (For Bright's Disease).—Is said to be compounded as follows: 4 lbs. smartweed; boil 1 hour in 1 gal. soft water, adding hot water to replenish quantity. Strain; add acetate potash, 4 oz.; sugar, 4 lbs.; boil again, and add alcohol, 1 oz. Flavor with oil wintergreen cut with alcohol.

PERFUMERY, TOILET PREPARATIONS, ETC.

Perfumes, to Extract from Flowers.—This is done by having square frames 3 inches deep with a glass bottom. A layer of fat (olive oil or lard) ¼ inch thick is spread on the glass, and on this a layer of flowers, and left from 1 to 3 days. Another method is to lay cotton cloths on wire gauze; the cloths are soaked with oil, and alternate layers of flowers and oiled cloths are piled up. The flowers are renewed from time to time, and a highly perfumed oil is obtained from the cloths, which are put under high pressure. The perfumed oil is then digested in double its weight of pure, deodorized alcohol for 3 or 4 days, in a tight bottle or vessel placed in a warm water bath, and agitated frequently. The alcohol is then decanted into another vessel containing perfumed fat, and the operation repeated 3 or 4 times, when the alcohol is thoroughly perfumed and forms a strong extract.

Another Process.—Macerate the flowers together with half their weight of blanched almonds in a mortar; the next day the mass is put under a powerful press, and the liquid obtained is left for a week, and then the oil rising on the surface is decanted and filtered.

Attar of Roses, to Extract from the Flowers.—Fill a jar with rose leaves; cover with clear water. Set in the sun for several days. The oil will rise to the surface and can be gathered with a wad of cotton tied to a stick. Squeeze into a phial. It is very valuable.

Bay Rum.—Bay oil, 10 drms.; pimento oil, 1 drm.; acetic ether, 8 oz.; alcohol, 3 gals; water, 2½ gals. Mix, and after standing 2 weeks filter.

Chapped Lips or Hands, Salve for.—2 oz. white wax; 1 oz. spermaceti; 2 oz honey. Melt the wax and spermaceti, add the honey when hot, then add 4 oz. almond oil gradually. Perfume with ¼ oz. ess. bergamot.

Depilatory.—A safe compound, according to Prof. Redwood. A strong solution of sulphuret of barium made into a paste with powdered starch as wanted.

Golden Hair.—To dye hair a golden color, use peroxide of hydrogen, a harmless but most efficient agent.

Hair Curling Fluid.—Gum arabic, 3 oz.; salts of tartar, 1½ oz.; rosewater, 2¼ pts.; orange flower oil, 6 oz. Color with liquid carmine.

Moles, to Remove from the Skin.—Use either of the following: Croton oil ointment or potassio tartrate of antimony, made in a paste. Apply thinly to the mole, and cover with strips of gummed paper. This produces a pustular eruption and removes the mole without leaving a scar.

Rose Lip Salve.—4 oz. almond oil; 1 oz. spermaceti; 2 oz. wax; 1 oz. alkanet root; melt in a water bath and mix, digesting the alkanet root four hours. Strain and add ⅛ oz. of attar of roses.

Sozodont—Pottassium carbonate ½ oz.; honey, 4 oz.; alcohol, 2 oz.; water, 10 oz.; oil wintergreen and oil of rose sufficient to flavor.

COLORING DEPARTMENT.

REMARKS.—It may be necessary to remark, and I do so here, once for all, that every article to be dyed, as well as everything used about dying, should be perfectly clean.

In the next place, the article to be dyed should be well scoured in soap, and then the soap rinsed out. It is also an advantage to dip the article you wish to dye into warm water, just before putting it into the alum or other preparation; for the neglect of the precaution it is nothing uncommon to have the goods or yarn spotted. Soft water should always be used, of possible, and sufficient to cover the goods handsomely.

As soon as an article is dyed it should be aired a little, then well rinsed, and afterwards hung up to dry.

When dyeing or scouring silk or merino dresses, care should be taken not to wring them, for this has a tendency to wrinkle and break the silk.

In putting dresses and shawls out to dry, that have been dyed, they should be hung up by the edge so as to dry evenly.

Great confidence may be placed in these coloring recipes, as the author has had them revised by Mr. Storms, of this city, who has been in the business over thirty years.

COLORS ON WOOLEN GOODS.

1. **CHROME BLACK**—Superior to Any in Use.—For 5 lbs. of goods—blue vitrol 6 ozs.; boil it a few minutes, then dip the goods ¾ of an hour, airing often; take out the goods, and make a dye with logwood, 3 lbs.; boil ½ hour; dip ¾ of an hour and air the goods, and dip ¾ of an hour more. Wash in strong suds.

N. B.—This will not impart any of its color in fulling, nor fade by exposure to the sun.

2. **BLACK ON WOOL—For Mixtures.**—For 10 lbs. of wool —bi-chromate of potash, 4 ozs.; ground argal, 3 ozs.; boil together and put in the wool; stir well and let it remain in the dye 4 hours. Then take out the wool, rinse it slightly in clear water; then make a new dye, into which put logwood, 3½ lbs. Boil 1 hour and add chamber-lye 1 pt., and let the wool lie in all night. Wash in clear water.

3. **STEEL MIX—Dark.**—Black wool—it may be natural or colored, 10 lbs.—white wool 1½ lbs. Mix evenly together and it will be beautiful.

4. **SNUFF BROWN—Dark, for Cloth or Wool.**—For 5 lbs. goods—camwood 1 lb.; boil it 15 minutes, then dip the goods for ¾ hour; take out the goods, and add to the dye, fustic 2½

lbs.; boil 10 minutes, and dip the goods ¾ hour; then add blue vitrol 1 oz.; copperas 4 ozs.; dip again ½ hour; if not dark enough, add more copperas. It is dark and permanent.

5. **WINE COLOR.**—For 5 lbs. goods—camwood 2 lbs.; boil 15 minutes and dip the goods ½ hour; boil again and dip ½ hour; then darken with blue vitrol 1½ ozs.; if not dark enough, add copperas ½ oz.

6. **MADDER RED.**—To each lb. of goods—alum 5 ozs.; red, or cream of tartar 1 oz.; put in the goods and bring your kettle to a boil for ½ hour; then air them and boil ½ hour longer; then empty your kettle and fill with clean water, put in bran 1 peck; make it milk warm and let it stand until the bran rises, then skim off the bran and put in madder ½ lb.; put in your goods and heat slowly until it boils and is done. Wash in strong suds.

7. **GREEN—On Wool or Silk, with Oak Bark.**—Make a strong yellow dye of yellow oak and hickory bark, in equal quantities. Add the extract of indigo, or chemic (which see), 1 tablespoon at a time, until you get the shade of color desired. Or:

8. **GREEN—With Fustic.**—For each pound of goods—fustic, 1 lb.; with alum 3½ ozs. Steep until the strength is out, and soak the goods therein until a good yellow is obtained; then remove the chips, and add extract of indigo or chemic, 1 tablespoon at a time, until the color suits.

9. **BLUE—Quick Process.**—For 2 lbs. of goods—alum 5 ozs.; cream of tartar 3 ozs.; boil the goods in this for 1 hour; then throw the goods into warm water, which has more or less of the extract of indigo in it, according to the depth of color desired, and boil it again until it suits, adding more of the blue if needed. It is quick and permanent.

10. **STOCKING YARN, OR WOOL TO COLOR—Between a Blue and Purple.**—For 5 lbs. of wool bichromate of potash 1 oz.; alum 2 ozs.; dissolve them and bring the water to a boil, putting in the wool and boiling 1 hour; then throw away the dye and make another dye with logwood chips, 1 lb., or extract of logwood 2½ ozs., and boil 1 hour. This also works very prettily on silk.

N. B.—Whenever you make a dye with logwood chips either boil the chips ½ hour and pour off the dye, or tie up the chips in a bag and boil with the wool or other goods, or take 2½ ozs. of the extract in place of 1 lb. of the chips; is less trouble and generally the better plan. In the above receipe the more logwood that is used the darker will be the shade.

11. **SCARLET, WITH COCHINEAL—For Yarn or Cloth.**—For 1 lb. of goods—cream of tartar ½ oz.; cochineal, well pulverized, ½ oz.; muriate of tin 2½ ozs.: then boil up the dye and enter the goods; work them briskly for 10 or 15 minutes. after which boil 1½ hours, stirring the goods slowly while boiling, wash in clear water and dry in the shade.

12. **PINK.**—For 3 lbs. of goods—alum 3 ozs., boil and dip the goods 1 hour; then add, to the dye, cream of tartar 4 ozs.;

cochineal, well pulverized, 1 oz.; boil well and dip the goods while boiling, until the color suits.

13. **ORANGE.**—For 5 lbs. goods—muriate of tin 6 tablespoons; argal 4 ozs.; boil and dip 1 hour; then add, to the dye, fustic 2½ lbs.; boil 10 minutes, and dip ½ hour, and add, again, to the dye, madder 1 tea cup; dip again ½ hour.

N. B.—Cochineal in place of madder makes a much brighter color, which should be added in small quantities until pleased. About 2 ozs.

14. **LAC RED.**—For 5 lbs. goods—argal 10 ozs.; boil a few minutes; then mix fine ground lac, 1 lb., with muriate of tin, 1¼ lbs., and let them stand for 2 or 3 hours; then add half of the lac to the argal dye, and dip ½ hour; then add the balance of the lac and dip again 1 hour; keep the dye at a boiling heat, until the last half hour, when the dye man be cooled off.

15. **PURPLE.**—For 5 lbs. goods—cream of tartar, 4 ozs.; alum 6 ozs.; cochineal, well pulverized, 2 ozs.; muriate of tin ½ tea cup. Boil the cream of tartar, alum and tin, 15 minutes; then put in the cochineal and boil 5 minutes; dip the goods 2 hours; then make a new dye with alum 4 ozs.; Brazil wood 6 ozs.; logwood, 14 ozs.; muriate of tin, 1 teacup, with a little chemic; work again until pleased.

16. **SILVER DRAB—Light.**—For 5 lbs. goods—alum 1 small teaspoon, and logwood about the same amount; boil well together, then dip the goods 1 hour; if not dark enough, add in equal quantities alum and logwood, until suited.

17. **SLATE, ON WOOLEN OR COTTON—With Beach Bark.**—boil the bark in an iron kettle, skim out the chips after it has boiled sufficiently, and then add copperas to set the dye. If you wish it very dark add more copperas. This is excellent for stockings.

18. **EXTRACT OF INDIGO OR CHEMIC—To Make.**—For good chemic or extract of indigo, take oil of vitrol ½ lb., and stir into it indigo, finely ground, 2 ozs., continuing the stirring at first for ½ hour; now cover over, and stir 3 or 4 times daily for 2 or 3 days; then put in a crumb of sälaratus and stir it up, and if it foams, put in more and stir, and add as long as it foams; the saleratus neutralizes any excess of acid; then put into a glass vessel and cork up tight. It improves by standing. Drŭggists keep this prepared.

19. **WOOL—To Cleanse.**—Make a liquid of water 3 parts and urine 1 part; heat it as hot as you can bear the hand in; then put in the wool, a little at a time, so as not to have it crowd; let it remain in for 15 minutes; take it out over a basket to drain; then rinse in running water, aud spread it out to dry; thus proceed in the same liquor; when it gets reduced fill it up, in the same proportions, keeping it at hand heat, all the time, not using any soap.

20. **DARK COLORS—To Extract and Insert Light.**—This recipe is calculated for carpet rags. In the first place let the rags be washed clean—the black or brown rags can be colored red, or purple, at the option of the dyer; to do this, take, for

every 5 lbs. black or brown rags muriate of tin ¾ lb.; and the lac ½ lb.; mixed with the same, as for the lac red; dip the goods in this dye 2 hours, boiling ½ of the time, if not red enough add more tin and lac. The goods can then be made a purple, by adding a little logwood; be careful and not get in but a very small handful, as more can be added if not enough. White rags make a beautiful appearance in a carpet, by tying them in the skein and coloring them red, green or purple; gray rags will take a very good green—the coloring will be in proportion to the darkness of the mix.

DURABLE COLORS ON COTTON.

1. **BLACK.**—For 5 lbs. goods—sumac, wood and bark together, 3 lbs.; boil ½ hour and let the goods steep 12 hours; then dip in lime water ½ hour; then take out the goods and let them drip an hour; now add to the sumac liquor, copperas 8 ozs., and dip another hour; then run them through the tub of lime water again for 15 minutes; now make a new dye with logwood 2½ lbs., by boiling 1 hour, and dip again 3 hours; now add bi-chromate of potash 2 ozs., to the logwood dye, and dip 1 hour. Wash in clear cold water and dry in the shade. You may say this is doing too much. You cannot get a permanent block on cotton with less labor.

2. **SKY BLUE.**—For 3 lbs. goods—blue vitrol 4 ozs.; boil a few minutes; then dip the goods 3 hours, after which pass them through strong lime water. You can make this color a beautiful brown by putting the goods through a solution of prussiate of potash.

3. **LIME WATER, AND STRONG LIME WATER—For coloring.**—Lime water is made by putting lime stone 1 lb., and strong lime water 1½ lbs. into a pail of water, slacking, stirring and letting it stand until it becomes clear, then turn into a tub of water, in which dip the goods.

4. **BLUE, ON COTTON OR LINEN—With Logwood.**—In all cases, if new, they should be boiled in a strong soap suds or weak lye and rinsed clean; then for cotton 5 lbs. or linen 3 lbs., take bi-chromate of potash ¾ lb.; put in the goods and dip 2 hours, then take out, rinse; make a dye with logwood 4 lbs.; dip in this 1 hour, air, and let stand in the dye 3 or 4 hours, or till the dye is almost cold, wash out and dry.

5. **BLUE ON COTTON—Without Logwood.**—For 5 lbs. of rags—copperas 4 ozs.; boil and dip 15 minutes; then dip in strong suds, and back to the dye 2 or 3 times; then make a dye with prussiate of potash 1 oz.; oil of vitrol 6 tablespoons; boil 30 minutes and rinse; then dry.

6. **GREEN.**—If the cotton is new, boil in weak lye or strong suds; then wash and dry; give the cotton a dip in the home-made blue dye tub until blue enough is obtained to make the green as dark as required; take out, dry, and rinse the goods a little; then make a dye with fustic ¾ lb.; logwood 3 ozs. to each lb. of goods, by boiling the dye 1 hour; when cooled so as

bear the hand, put in the cotton, move briskly a few minutes, and let lay in 1 hour; take out and let it thoroughly drain; dissolve and add to the dye, for each lb. of cotton, blue vitrol ½ oz., and dip another hour; wring out and let dry in the shade. By adding or diminishing the logwood and fustic, any shade of green man be obtained.

7. **YELLOW.**—For 5 lbs. of goods—sugar of lead 7 ozs.; dip the goods 2 hours; make a new dye with bi-chromate of potash 4 ozs.; dip until the color suits, wring out and dry; if not yellow enough repeat the operation.

8. **ORANGE.**—For 5 lbs. goods—sugar of lead 4 ozs.; boil a few minutes, and when a little cool put in the goods; dip 2 hours, wring out; make a new dye with bi-chromate of potash 8 ozs.; madder 2 ozs.; dip until it suits; if the color should be too red, take off a small sample and dip it into lime water, when the choice can be taken of the sample dipped in the lime or the original color.

8. **RED.**—Take muriate of tin 2-3 of a teacup; add sufficient water to cover the goods well, bring it to a boiling heat, putting in the goods 1 hour, stirring often; take out the goods and empty the kettle and put in clean water; with nic-wood 1 lb., steeping it for ½ hour, at hand heat; then put in the goods and increase the heat for 1 hour, not bringing it to a boil at all; air the goods and dip an hour as before; wash without soap.

9. **MURIATE OF TIN—Tin Liquor.**—If druggists keep it, it is best to purchase of them already made; but if you prefer, proceed as follows:

Get at a tinner's shop, block tin; put it in a shovel and melt it. After it is melted, pour it from the height of 4 or 5 feet into a pail of clear water. The object of this is to have the tin in small particles, so that the acid can dissolve it. Take it out of the water and dry it; then put it into a strong glass bottle; pour over it muriatic acid 12 ozs.; then slowly, add sulphuric acid 8 ozs. The acid should be added about a tablespoon at a time, at intervals of 5 or 8 minutes, for if you add it too rapidly you run the risk of breaking the bottle by heat. After you have all the acid in, let the bottle stand until the ebullition subside; then stop it with a beeswax or glass stopper, and set it away, and it will keep good for a year or more, or will be fit for use in 24 hours.

COLORS ON SILK GOODS.

1. **GREEN—Very Handsome with Oak Bark.**—For 1 lb. of silk—yellow oak bark 8 ozs.; boil it ½ hour; turn off the liquor from the bark and add alum 6 ozs.; let stand until cold; while this dye is being made, color the goods in the blue dye tub, a light blue; dry and wash; then dip in the alum and bark dye; if it does not take well, warm the dye a little.

2. **GREEN OR YELLOW—On Silk or Wool, in Five to Fifteen Minutes.**—For 5 lbs. of goods—black oak bark or peach leaves ½ peck; boil well; then take out the bark or leaves, and

add muriate of tin ⅛ teacup, stirring well; then put in the goods and stir them round, and it will dye a deep yellow in from 5 to 15 minutes, according to the strength of the bark; take out the goods, rinse and dry immediately.

N. B.—For a green add to the above dye extract of indigo or chemic 1 tablespoon only at a time, and work the goods 5 minutes, and air; if not sufficiently dark, use the same amount of chemic as before, and work again until it suits.

3. **MULBERRY.**—For 1 lb. of silk—alum 4 ozs.; dip 1 hour; wash out, and make a dye with Brazil wood 1 oz., and logwood ¼ oz. by boiling together; dip in this ½ hour; then add more Brazil wood and logwood, in equal proportions, until the color is dark enough.

4. **BLACK.**—Make a weak dye as you would for black on woolens; work the goods in bi-chromate of potash at a little below boiling heat, then dip in the logwood in the same way; if colored in the blue vitrol dye, use about the same heat.

5. **SPOTS—To Remove and Prevent When Coloring Black on Silk or Woolen.—N. B.**—In dyeing silk or woolen goods, if they should become rusty or spotted, all that is necessary is to make a weak lye, and have it scalding hot, and put your goods in for 15 minutes; or throw some ashes into your dye and run your goods in it 5 minutes, and they will come out a jet black and an even color. I will warrant it.—Storms.

The reason that spots of brown or rust, as it is generally called, appear on black cloths, is that these parts take the color faster than the other parts, but I have no doubt Mr. Storms' plan will remove them, for he regretted much to make public the information, which, he says, is not generally known. And if the precaution, given in our leading remarks on coloring, are heeded, there will be but very little danger of spotting at all.

6. **LIGHT CHEMIC BLUE.**—For cold water 1 gal., dissolve alum ½ tablespoon in hot water 1 teacup and add to it; then add chemic 1 teacup at a time, to obtain the desired color—the more chemic that is used, the darker will be the color.

7. **PURPLE.**—For 1 lb. of silk—having first obtained a light blue by dipping in the home-made blue dye tub and dried, dip in alum 4 ozs., to sufficient water to cover, when a little warm; if the color is not full enough add a little chemic.

6. **YELLOW.**—For 1 lb. of silk—alum 3 ozs.; sugar of lead ¾ ozs.; immerse the goods in the solution over night; take out, drain, and make a new dye with fustic 1 lb.; dip until the required color is obtained.

N. B.—The yellow or green, for wool, works equally well on silk.

9. **ORANGE.**—Take anotta and soda and add in equal quantities, according to the amount of goods and darkness of the color wanted: Say 1 oz. of each to each pound of silk, and repeat as desired.

10. **CRIMSON.**—For 1 lb. of silk—alum 3 ozs.; dip at hand heat 1 hour; take out and drain, while making a new dye, by boiling 10 minutes, cochineal 3 ozs.; bruised nutgalls 2 ozs.;

and cream of tartar ¼ oz., in one pail of water; when a little cool, begin to dip, raising the heat to a boil, continuing to dip 1 hour; wash and dry.

11. **CINNAMON OR BROWN ON COTTON AND SILK—By a New Process—Very Beautiful.**—Give the goods as much color, from a solution of blue vitrol 2 ozs., to water 1 gal., as it will take up in dipping 15 minutes; then run it through lime water; this will make a beautiful sky blue, of much durability; it has now to be run through a solution of prussiate of potash 1 oz., to water 1 gal.

APPENDIX TO COLORING DEPARTMENT.

Pansy for Silk Garments (17¼ oz.).—Dye at 167 degrees Fahrenheit.

Having first washed the article well in a beck of ½ oz. curd soap and solution of aniline violet, more or less, according to shade.

Light Brown or Silk Garments (17¼ oz.).—Wash for fifteen minutes in a clear beck made up with 1¾ ozs. genuine certch; lift and enter in a fresh beck at the same heat, with ¾ oz. chromate of potash, and work in this for a quarter of an hour; rinse and dye up at 167 degrees Fahrenheit, with a little Vesuvin and Magenta. Vesuvin should predominate for yellowish tones and Magenta for red ones.

Dyeing.—1. Pour a little solution of indigo in Sulphuric Acid into a glass of water and add about an equal quantity of solution of Carbonate of Potash. If a piece of white cloth be dipped in this mixture it will come out a blue. If a piece of yellow cloth be dipped in it will become a green, or a red will be converted to a purple. A slip of blue litmus paper immersed in it will immediately become red.

2. If a little fustic, quercitron bark or other dye be boiled in water the coloring matter will be extracted and a colored solution formed. On adding a small quantity of dissolved alum to this decoction the alumina or base of the salt will attract the coloring matter, forming an insoluble compound, which in a short time will subside and may easily be separated.

3. Boil a little cochineal in water, with a grain or two of Cream of Tartar (Supertartrate of Potash), and a dull kind of crimson will be formed. By the addition of a few drops of Nitro-Muriate of tin the coloring matter will be precipitated of a beautiful scarlet. This and some of the former instances will give a tolerable correct idea of the general process of dyeing woolen cloths.

4. If a few strips of dyed linen cloth of different colors be dipped into a phial of Oxymuriatic acid the colors will be quickly discharged; for there are few colors that can resist the energetic effect of this acid. This experiment may be considered as a complete example of the process of bleaching colored goods.

5. Having found a piece of blue linen cloth that will bleach in Oxygenised Muriatic Acid, dip the tip of the finger in a solution of Muriate of Tin and press it while wet with the solution upon a strip of this cloth. After an interval of a few minutes immerse the cloth in a phial of liquid Oxymuriatic Acid and when it has remained in it the usual time it will be found that the spot which was previously wet with the Muriate of Tin has

preserved its original color, while the rest of the cloth has become white.

6. Dip a piece of white calico in a strong solution of Acetate of Iron; dry it by the fire and lay it aside for three or four days. After that wash it well in hot water and then dye it black by boiling it for ten minutes in a strong decoction of Brazil wood. If the cloth be now dried, any figures printed upon it with a colorless solution of Muriate of Tin will appear of a beautiful scarlet, although the ground will remain a permanent black.

7. Dissolve 4 drs. of Sulphate of Iron in 1 pint of cold water, then add about6 drs. of Lime in Powder and 2 drs. of finely Pulverized Indigo, stirring the mixture occasionally for 12 or 14 hours. If a piece of white calico be immersed in this solution for a few minutes it will be dyed green, and by exposure to the atmosphere only for a few seconds this will be converted to a permanent blue.

8. If a piece of calico be immersed in a solution of Sulphate of Iron and when dry washed in a weak solution of Carbonate of Potash a permanent color will be produced, viz., the buff of the calico printers.

9. Boil equal parts of Annotto and common Potash in water till the whole are dissolved. This will produce the pale reddish-buff so much in use, and sold under the name of nankeen dye.

10. If Muriate of Tin, newly made, be added to a solution of Indigo in Sulphuric Acid the oxygen of the Indigo will be absorbed and the solution instantly converted to a green. It is on the same principle that Muriate of tin is employed in cleansing discolored leather furniture, as it absorbs the oxygen and the leather is restored to its natural color.

11. Take a piece of dark olive-colored linen that has been dyed with Iron and Quercitron bark or weld and spot it in several places with a colorless solution of Muriate of Tin. Wherever the cloth has been touched with this solution the original color will be discharged and spots of a bright yellow will appear in its stead.

12. Dip a piece of white calico in a cold solution of Sulphate of Iron and suffer it to become entirely dry. Then imprint any figures upon it with a cold solution of colorless Citric Acid and allow this also to dry. If the piece be then well washed in pure warm water and afterwards boiled in a decoction of Logwood the ground will be dyed either a slate or black color, according to the strength of the metallic solution, while the printed figures will remain beautifully white. This experiment is designed to show the effect of acids in discharging vegetable colors.

13. If lemon juice be dropped upon any kind of buff color the dye will be instantly discharged. The application of this acid by means of the black is another method by which calico printing gives the white spots or figures to piece goods. The crystallized is generally used for this purpose.

These thirteen experiments will give some idea of the nature of calico printing.

To Dye Silk a Salmon Color.—The process is similar to that given for flesh color, except that the goods must be passed through diluted muriate of tin.

To Dye Silk, Wool or Worsted a Beautiful Mauve.—Water, 1 gal.; sulphuric acid, ½ oz. Mix and heat to boiling point.

For a very light mauve, add one teaspoonful imperial violet liquor; boil the same amount of material, as stated under Magenta, about 10 minutes. Rinse in cold water. If the color be too deep use a little soap in rinsing, using warm water.

To Dye Silk, Worsted or Cotton a Plum Color.—Water, 1 gal.; sulphuric acid, 1 dr.; Glauber salts in crystals, 1 oz.; violet liquor, 4 drs.; magenta liquor, 2 drs. Boil the articles about 10 minutes.

Crimson for Worsted or Wool.—Water, 3 gals.; paste cochineal, 1 oz.; cream of tartar, 1 oz.; nitrate of tin, 4 drs. Boil the goods in this one hour. Wash first in cold water, then in another vessel with 3 gals. warm water with a cupful of ammonia, the whole well mixed. Put in the goods and work well for 15 minutes. For a blue shade add more ammonia. Then wash out.

To Dye Silk a Flesh Color.—Boiling water, 1 gal.; white soap. 1 oz.; pearl ash, 1 oz.; mix well, then add annatto liquor, ½ oz. Put the silk through several times and proportion the liquor till you obtain the required shade.

Black Dye for Worsted or Woolen.—Bichromate of potash, ¾ oz.; water, 3 gals. Dissolve the bichromate of potash in the water and boil the goods in this 40 minutes and wash out in cold water; then take water, 3 gals.; logwood, 9 ozs.; fustic, 3 ozs.; double oil of vitriol, 2 drops. Boil the goods 40 minutes. wash out in cold water. This will dye from 1 to 2 pounds of cloth, or a lady's dress, if of a dark color or brown, claret, etc.

Imperial Blue for Silk, Wool and Worsted.—Water, 1 gal.; sulphuric acid, ½ oz.; imperial blue, 4 drs.; mix. Immerse the silk, worsted or wool and boil 10 minutes; wash in a weak solution of soap lather.

Logwood and Indigo Blue Dye for Cloth.—Take 100 pounds of cloth and color it by first dipping it in the vat of indigo blue a couple of times, rinse it well and boil in the following solution: Alum, 20 lbs.; half refined tartar, 2 lbs.; mordant, 5 lbs. Boil for two hours. Take out and cool off to 170 degrees Fahrenheit before entering; handle well over a rell; let it boil for half an hour, then take it out, cool and rinse. This is a very fine blue.

To Fix Dyes.—Gelatine, 20 ozs.; bichromate of potash, 3 ozs. Dissolve the gelatine in water before adding the potash. The work is done in a dark room. The coloring matter is next added and the goods submitted thereto; after which they are exposed to the action of light; the pigment thus becomes insoluble in the water and the color is fast.

Scarlet Dye with Cochineal.—Cream of tartar, 25 ozs.; cochineal, pulverized, 12½ ozs.; muriate of tin or scarlet spirit, 8 lbs. Boil the dye, enter the goods, work them well for 15 minutes, then boil them 1½ hours, slowly agitating the goods while boiling; wash in clean water and dry out of the sun.

The above is calculated for 50 pounds of wool yarn.

To Dye a Light Silver Drab.—For 50 pounds of goods use, logwood, ½ lb.; alum, ⅛ lb. Boil well, enter the goods and dip them for one hour. Grade the color to any desired shade by using equal parts of logwood and alum.

Chrome Black for Wool.—For 40 pounds of goods use, blue vitriol, 3 lbs. Boil it a short time, then dip the wool or fabric three-quarters of an hour, airing frequently; take out the goods and make a dye with logwood, 24 lbs. Boil one-half hour, dip three-quarters of an hour, air the goods and dip one-quarter of an hour longer; wash in strong soapsuds. A good, fast color.

To Dye Straw Bonnets.—Ground saunders,, 1½ lbs.; ground curcuma, 2 lbs.; powdered nut galls, ¾ lb.; logwood (rasped), 1-10 lb. Boil the straw goods with the above in a large kettle (so as not to crowd) for 2 hours, then withdraw the hats, rinse and let them remain over night in a bath of nitrate of 4 degrees Baume, when they are washed. The above preparation is sufficient for 25 bonnets.

Aniline Red.—Enclose the aniline in a small muslin bag; have a kettle (tin or brass) filled with moderately hot water and rub the substance out. Then immerse the gooods to be colored and in a short time they are done. It improves the color to wring the goods out of strong soapsuds before putting them in the dye. This is a permanent color on wool or silk.

To Dye Silk, Wool or Worsted Magenta Color.—Water, 180 degrees Fahrenheit, 1 gal.; magenta liquor, 4 drs.; stir it up well.

The above dye may be intensified very easily by using more or less of the magenta liquor.

Brown on Cotton.—Catechu, 1 lb.; verdigris, 4 oz.; sal-ammoniac, 5 ozs.

Brown on Wool or Silk.—Infusion or decoction of walnut peels dyes wool and silk a brown color, which is brightened by alum. Horse chestnut peels also impart a brown color; a mordant of muriate of tin turns it on the bronze and sugar of lead the reddish brown. Take three times through an old soda beck. Rinse when the dyeing is complete.

Billiard Green on Cloth (110 pounds).—Dissolve in water, alum, 16 lbs. 6 ozs.; boil in it fustic, 22 lbs., and add extract of indigo, 5 lbs. 7 ozs.

The color most in favor at the present time is caroubier, which seems to combine the red cardinal and yellow-brown. It is easily obtained on wool in a bath of fuchsine, with the addition of a very small quantity of aniline maroon, or by a mixture of orchil with redwood and a little fustic added, it is easy to produce this shade.

Eoxine is now being largely substituted for cochineal in the dyeing of wool. A beautiful bright scarlet may be obtained by using the following: To 10 lbs. of wool 3 ozs. of eoxine and 8 ozs. of alum; take through cold water and work for 30 minutes in a beck of sumac, 3¼ lbs., at 190 degrees Fahrenheit; then dye in a cold beck with magenta, 1¾ ozs.; take out, add to the beck alum, 8¾ ozs., and the decoction of logwood, 2¼ lbs. Enter again, work in a cold beck; lift and add, according to shade, from ⅛ to 1¾ ozs. chromate of potash; re-enter and work. The color is now complete.

Fast Black on Woolen (11 pounds).—Boil for one hour with chromate of potash, 4½ ozs.; prepared tartar, 4½ ozs., finely ground; rinse immediately and let cool in the liquor and dye with logwood, 6½ lbs., adding a little fustic, according to shade, and logwood, 7 ozs. Boil for three-quarters of an hour. After dyeing, drain and take the yarns four times through the prepared beck; rince, and then lime, 17¼ oz.; rinse slightly, and work in a cold beck of chromate of potash, 17¼ ozs.; sulphuric acid, 17¼ ozs., for a quarter of an hour; redden in a boiled beck with lime, 8¾ ozs., working for three minutes and rinsing. If a redder shade is required top in fresh cold water, with magenta, ⅛ oz.

Rose on Linen (11 pounds).—Work in a boiling beck of tannin, 7 ozs.; curd soap, 3½ ozs.; add to the water the solution of tin crystals, 3½ ozs., and dye with ⅛ to ¾ oz. saffranine at 110 Fahrenheit.

Claret on Cotton Yarns (11 pounds).—Make up a beck with prepared catechu, 17¼ ozs., and work the prepared yarn in it for one hour; wring and steep for half an hour in a hot beck of chromate potash, 6¼ ozs.

Dark Cannelle.—For 100 pounds bleached cotton: Catechu, 15 lbs.; blue vitriol, 6 lbs.; bichromate, 1 lb. Work as in yellow cannelle and finish in a boiling bath of sal soda, 4 lbs.

Gold Yellow on Linen (11 pounds).—Steep for three hours in a boiling beck of Tannin, 17¼ ounces. And dye in a fresh cold beck with Aniline Orange, 3½ ounces. Otherwise known as Phosphine.

Carmelite Olive.—For 100 pounds bleached cotton: Catechu, 15 pounds; Blue Vitrol, 4 pounds; Bichromate, 1 pound.

Work same as Yellow Cannelle and finish with Quercitron, 10 pounds; Pyrolignite of Iron, 1 goblet.

Tete de Negre.—For 100 pounds bleached cotton: Catechu, 5 pounds; Alum, 2 pounds; Blue Vitrol, 1 pound; Bichromate, 2 pounds.

Work as in Yellow Cannelle, and finish with: Red Sanders, 40 pounds; Pyrolignite of Iron, 1 goblet.

For each 25 pounds of cotton.

No regularity in the change of pitch of the saturated gypsum bars, in comparison with the dry bars, is here recognizable. A comparison of the condition of each bar, when it has taken up liquid, shows a change of the modus of elasticity to a certain degree, which is only different for different liquids set over against each other.

Yellow Cannelle.—For 100 pounds bleached cotton: Catechu, 10 pounds; Blue Vitrol, 4 pounds; Bichromate, ½ pound.

Pass first through the Catechu, and wring; then pass through the Bichromate, and wash. Repeat the passes, and wash. Finish with Quercitron Bark, 10 pounds.

Garrancine Red on Cotton (11 pounds).—Prepare right at a boil with 2 pounds 3 ounces Sumach. Dry and enter in a beck of red liquor at 70° Baume, where it is left for 6 hours, with frequent turning. Take out and soak well in a fresh hot beck of 17¼ ounces Elutriated Chalk and 2 pounds 3 ounces of cowdung, rinse and dye in two becks. The first consists of 14 ounces Garrancine, 5¼ ounces Sumach and 7 ounces Bean. Enter at 77° Fahrenheit, and raise the heat slowly to 167° Fahrenheit. Enter in the imbibed liquid; it is greater the specific of gravity of the liquid, or the vibration number of such a bar as is inversely as the specific gravity of the liquid.

The change of the tone through absorption of liquids is also produced by a change, namely, a decrease of the coefficient of elasticity. This occurs most in the case of water, less with alcohol, least with oil.

Bronze on Cloth and Woolen Piece Goods (45 pounds).—Boil for 90 minutes with 5½ pounds Alum, 2 pounds 12 ounces Argol, and then same weight of Blue Vitrol. Take out and dye at a boil for one hour in a fresh beck with 32 pounds 13 ounces Fustic, 2 pounds 12 ounces Logwood, and 13 pounds 11 ounces Madder. Take out and sadden to shade with 3 pounds 4 ounces to 5 pounds copperas.

Ponceau on Cotton Yarn (11 pounds).—Boil for one hour with 8¾ ounces Curd Soap; take out and enter in a boiling beck of 1 pound 10 ounces Annats, and 10½ ounces Soda Crystals. Here let it remain for 6 hours. Take out and enter in a beck of Bichloride of Tin at 3° Baume, where it is left for 3 hours with frequent turning. It is then taken through water and dyed at 167° Fahrenheit with the clear solution of 6¼ ounces Saffranin.

Fast Green on Wool (219 pounds).—Prepare at a boil for 90 minutes with 19½ pounds of Sulphate of Alumina (cake alum), 4 pounds 14 ounces of Chromate of Potash, the same weight of Sulphuric Acid, and 1 pound 10 ounces Tin Crystals. Then boil up in the dye pan 1 pound 1½ ounces Sulphate of Alumina, and remove scum if needful; add 46 pounds "Chemic" (some extract of Indigo), 18 ounces French Extract of Fustic, and 17¼ ounces of Salt. Boil for 1½ to 2 hours. The Chemic is prepared with 6 pounds 9 ounces Indigo, and 26 pounds 4 ounces fuming Sulphuric Acid; diluting with 44 pounds water, after standing for 24 hours.

Golden Olive on Wool.—Boil for 90 minutes with 6 pounds 9 ounces Chromate of Potash, 3 pounds 4½ ounces Blue Vitriol, and 1 pound 10 ounces Sulphuric Acid; then dye with 12 pounds French Extract of Fustic, 17¼ ounces French Extract of Logwood, 6 pounds 9 ounces Sanders and the same weight of Madder; boil for 75 minutes, sadden with 1 pound 10 ounces Copperas, and boil 30 minutes longer.

Pansy on Shoddy.—Prepare with 2 pounds 3 ounces Chrome Alum, 2 pounds 3 ounces Sulphuric Acid, and ¾ ounce Chloride of Tin. Then dry to shade with Aniline Violet (soluble in Alcohol).

Green for Half Woolen Garments (11 pounds).—Make up a beck with 17¼ ounces Alum, 8¾ ounces Argol, 17¼ ounces Fustic, and 3½ ounces Extract of Indigo. Boil the goods in this for an hour; rinse. Prepare with ¾ pound Sumach; ring out and top in a fresh cold beck. with 1¾ ounces Methyl Green.

Mode of Jute (11 pounds).—Boil out 17¼ ounces of prepared

Catechu. Pour the solution into water at 100° Fahrenheit, and dissolve therein 1¾ ounces Blue Vitriol. Wet out the Jute in water at 100° Fahrenheit, enter in the Catechu beck, and work for half an hour. Take out, and add the solution of 1¾ ounces Chromate of Potash. Re-enter work to shade, rinse and dry.

Gray on Jute (11 pounds).—Boil 17¼ ounces Sumach in water, and steep the Jute for an hour in the liquid. Take out, dissolve 17¼ ounces of Copperas. Enter the goods, and dry to shade. If a blue gray is required, make up a fresh beck at 77° with the solution of 17¼ ounces Alum, and ⅜ ounce Extract of Indigo, and a very little solution of Magenta; enter the goods and dry to shade.

Dressings for White Shirtings.—For 175 pints of dressing, take 11 pounds of Wheat Starch, 2 pounds 3 ounces Stearine, and 6 pounds 9 ounces China Clay. Boil up together and apply hot, and dry on the cylinder.

Pansy on Jute (11 pounds).—Wet out perfectly in water at 100° Fahrenheit; lift and add ½ ounce, or a little more, according to shade of Soluble Violet, previously dissolved and filtered. Enter, give 5 turns, and dry. Re-enter, give 5 turns and dry.

Crimson on Jute (11 pounds).—Wet out as before, and dry with 1¼ ounce to ½ ounce of Magenta.

Bismarck on Jute (11 pounds).—Wet out and dry with ½ ounce to 1 ounce Vesuvin.

Blue on Silk Garments (17¼ ounces).—Wash and work for a quarter of an hour in a boiling kettle, ⅛ ounce Nicholson Blue and 3⅛ ounces Borax. Lift, drain and take through a cold beck of 3½ ounces of Sulphuric Acid.

Silver Gray on Silk Garments (17¼ ounces).—Make up the kettle with 3⅛ ounces Orchil, 1 ounce Turmeric, 1 ounce Sulphuric Acid, ¾ ounce Violet Lake, and ⅛ ounce Magenta, and dye at a boil.

Brown or Woolen Piece Goods.—Boil for 1 hour with 2 pounds 3 ounces Chromate of Potash, and the same weight of Argol. Let cool in the flot, and dye at a boil for one hour, with 44 pounds of Fustic, 11 pounds Madder and 11 pounds Camwood. Take out, and dissolve in the beck, 2 pounds 3 ounces Copperas, and 17¼ ounces Blue Vitriol. Re-enter, and boil for an hour longer.

Weights and Measures

The following tables of weights and measures will be found useful in connection with the recipes in this book. They have been worked out carefully and are suitable for household and business purposes.

TABLE FOR MAKING SOLUTIONS.

1: 1000	1 teasp. to gallon
1: 500	2 teasp. to gallon
1: 200	5 teasp. to gallon
1: 100	2½ teasp. to quart
1: 50	5 teasp. to quart
1: 25	2½ tablesp. to quart
1: 20	3 tablesp. to quart
1: 10	6 tablesp. to quart
1/10 of 1%	15 drops to quart
1/5 of 1%	30 drops to quart
1/2 of 1%	1¼ teasp. to quart
1%	1¼ teasp. to pint
2%	2½ teasp. to pint
4%	5 teasp. to pint
5%	1½ tablesp. to pint
10%	3 tablesp. to pint

WEIGHT OF WATER.

1 teaspoon	⅛ ounce
1 tablespoon	½ ounce
1 basting spoon	2 ounces
1 gill	4 ounces
1 pint	16 ounces
1 quart	32 ounces

LONG MEASURE.

12 inches	1 foot
3 feet	1 yard
16¼ feet	1 rod
320 rods	1 mile

DRY MEASURE.

2 pints	1 quart
8 quarts	1 peck
4 pecks	1 bushel

SIMPLE LIQUID MEASURE.

1 saltspoon	10 drops
1 teaspoon	4 saltspoons
1 tablespoon	4 teaspoons
1 basting spoon	4 tablespoons
1 gill	2 basting spoons
1 cup	2 gills
1 pint	2 cups
1 quart	2 pints
1 gallon	4 quarts

SIMPLE DRY MEASURE.

1 teaspoon	4 saltspoons
1 tablespoon	3 teaspoons
1 cup	12 tablespoons
1 cup	8 tablespoons, heaping

COMPARATIVE WEIGHTS AND MEASURES.

1 drop equals	1 minim
60 drops equals	1 dram
4 teaspoons equal	½ ounce
2 tablespoons equal	1 ounce
1 wine glass equals	2 ounces
1 teacup equals	5 ounces
1 tumblerful equals	½ pint

TROY WEIGHT.

24 grains	1 pennyweight
20 pennyweights	1 ounce
12 ounces	1 pound

SQUARE MEASURE.

144 sq. inches	1 sq. foot
9 sq. feet	1 sq. yard
30¼ sq. yards	1 sq. rod
272¼ sq. feet	1 sq. rod
160 sq. rods	1 acre
640 acres	1 sq. mile

TABLE OF HOUSEHOLD WEIGHTS AND MEASURES.

Bread Crumbs	1	tumblerful	3	ozs.
Butter	1	tablesp. (heaping)	1	oz.
Butter, cold	1	tumblerful	6	ozs.
Butter, warm	1	tumblerful	8	ozs.
Butter, cold	Size	of an egg	2	ozs.
Butter, warm	1	qt.	1	lb.
Coffee (ground)	1	tumblerful	3	ozs.
Coffee	1	tablesp. (heaping)	½	oz.
Corn Meal	1	tablesp.	½	oz.
Corn Meal	1	tumblerful, level	4½	ozs.
Corn Meal	1	qt.	1⅛	lb.
Currants	1	tumblerful	6	ozs.
Dates	1	tumblerful	½	lb.
Eggs, White of one, about			1	oz.
Eggs, Yolk of one, about			1	oz.
Eggs, usual size, 9 to the pound.				
Eggs, large size, 8 to the pound.				
Figs	1	tumblerful	8	ozs.
Flour	1	teasp. (heaping)	½	oz.
Flour	1	tablesp. (heaping)	1	oz.
Flour	2	tablesp. (level)	1	oz.
Flour	1	tumblerful	4	ozs.
Flour	1	tumblerful (heaping)	6	ozs.
Flour	4	tumblerfuls	1	lb.
Flour	4	tumblerfuls	1	qt.
Flour, sifted	1	qt.	1	lb.
Lard	1	tablesp. rounded	1	oz.
Lard	Size	of an egg	2	ozs.
Lard	2	tumblerfuls	1	lb.
Lard, melted	1	tumblerful	7	ozs.
Lard, soft	1	qt.	1	lb.
Meat, chopped	1	tumblerful	8	ozs.
Milk	1	tablesp.	½	oz.
Milk	½	pint	8	ozs.
Milk	1	qt.	1	lb.
Molasses	1	tumblerful	12	ozs.
Nutmegs, five or six			1	oz.
Prunes	1	tumblerful	½	lb.
Raisins	1	tumblerful	½	lb.
Raisins, seeded	1	tumblerful (heaping)	½	lb.
Rice	1	tablesp. (heaping)	½	oz.
Rice	1	tumblerful	½	lb.
Salt	1	tumblerful (level)	6½	ozs.
Salt	1	tumblerful (heaping)	7	ozs.
Salt	1	teasp. (heaping)	½	oz.
Sago	1	tablesp. (heaping)	1	oz.
Sago	1	tumblerful	8	oz.
Spices, ground	1	tablesp. (heaping)	½	oz.
Sugar, brown	1	tablesp. (heaping)	1	oz.
Sugar, brown	1	tumblerful (heaping)	½	lb.
Sugar, brown	2½	tumblerfuls (heaping)	1	lb.
Sugar, granulated	1	tablesp. (heaping)	1	oz.

Example: Desired to obtain the interest on $1,111.00 for 1 year, 4 months and 27 days at 6 per cent.

Turning to the tables you will see that the time is given in the left hand column, the amounts on which you desire to find the interest are given at the heads of the various right hand columns, the sum sought is found at the meeting of the lines to the right of the time and down from the amount, as follows:

The interest on $1,000, 1 year, at 6 per cent	$60.00
The interest on 100, 1 year, at 6 per cent	6.00
The interest on 10, 1 year, at 6 per cent	60
The interest on 1, 1 year, at 6 per cent	06
The interest on 1,000, 4 months, at 6 per cent	20.00
The interest on 100, 4 months, at 6 per cent	2.00
The interest on 10, 4 months, at 6 per cent	20
The interest on 1, 4 months, at 6 per cent	02
The interest on 1,000, 27 days, at 6 per cent	4.50
The interest on 100, 27 days, at 6 per cent	45
The interest on 10, 27 days, at 6 per cent	05
The interest on 1. 27 days, at 6 per cent	00
Whole sum of interest sought	$93.88

In the same manner proceed with any other amounts, or any other time, or rate per cent; and if for more than one year, multiply the interest for 1 year by the number of years for which the interest is sought; if for twenty, thirty, sixty, or any other amount between ten and one hundred dollars, multiply the interest on ten dollars by the number of tens in the amount, which gives you the whole sum of interest sought; the same rule holds good on hundreds, between one hundred and one thousand and also on thousands.

To find interest at 5 per cent, take one-half of the 10 per cent rate.

And, of course, the principle works the same on all of the tables for the different rates of per cent.

INTEREST TABLE.

Six Per Cent.

Time.	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10	$100	$1,000
1 day	0	0	0	0	0	0	0	0	0	0	2	17
2 days	0	0	0	0	0	0	0	0	0	0	3	33
3 days	0	0	0	0	0	0	0	0	0	1	5	50
4 days	0	0	0	0	0	0	0	1	1	1	7	67
5 days	0	0	0	0	0	1	1	1	1	1	8	83
6 days	0	0	0	0	1	1	1	1	1	1	10	1.00
7 days	0	0	0	0	1	1	1	1	1	1	12	1.17
8 days	0	0	0	1	1	1	1	1	1	1	13	1.33
9 days	0	0	0	1	1	1	1	1	1	2	15	1.50
10 days	0	0	1	1	1	1	1	1	2	2	17	1.67
11 days	0	0	1	1	1	1	1	1	2	2	18	1.83
12 days	0	0	1	1	1	1	1	2	2	2	20	2.00
13 days	0	0	1	1	1	1	2	2	2	2	22	2.17
14 days	0	0	1	1	1	1	2	2	2	2	23	2.33
15 days	0	1	1	1	1	2	2	2	2	3	25	2.50
16 days	0	1	1	1	1	2	2	2	2	3	27	2.67
17 days	0	1	1	1	1	2	2	2	3	3	28	2.83
18 days	0	1	1	1	2	2	2	2	3	3	30	3.00
19 days	0	1	1	1	2	2	2	3	3	3	32	3.17
20 days	0	1	1	1	2	2	2	3	3	3	33	3.33
21 days	0	1	1	1	2	2	2	3	3	4	35	3.50
22 days	0	1	1	1	2	2	3	3	3	4	37	3.67
23 days	0	1	1	2	2	2	3	3	3	4	38	3.83
24 days	0	1	1	2	2	2	3	3	4	4	40	4.00
25 days	0	1	1	2	2	3	3	3	4	4	42	4.17
26 days	0	1	1	2	2	3	3	3	4	4	43	4.33
27 days	0	1	1	2	2	3	3	4	4	5	45	4.50
28 days	0	1	1	2	2	3	3	4	4	5	47	4.67
29 days	0	1	1	2	2	3	3	4	4	5	48	4.83
1 month	1	1	2	2	3	3	4	4	5	5	50	5.00
2 months	1	2	3	4	5	6	7	8	9	10	1.00	10.00
3 months	2	3	5	6	8	9	11	12	14	15	1.50	15.00
4 months	2	4	6	8	10	12	14	16	18	20	2.00	20.00
5 months	3	5	8	10	13	15	18	20	23	25	2.50	25.00
6 months	3	6	9	12	15	18	21	24	27	30	3.00	30.00
7 months	4	7	11	14	18	21	25	28	32	35	3.50	35.00
8 months	4	8	12	16	20	24	28	32	36	40	4.00	40.00
9 months	5	9	14	18	23	27	32	36	41	45	4.50	45.00
10 months	5	10	15	20	25	30	35	40	45	50	5.00	50.00
11 months	6	11	17	22	28	33	39	44	50	55	5.50	55.00
1 year	6	12	18	24	30	36	42	48	54	60	6.00	60.00

INTEREST TABLE.

Seven Per Cent.

Time.	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10	$100	$1,000
1 day	0	0	0	0	0	0	0	0	0	0	2	19
2 days	0	0	0	0	0	0	0	0	0	0	4	39
3 days	0	0	0	0	0	0	0	0	1	1	6	58
4 days	0	0	0	0	0	0	1	1	1	1	8	78
5 days	0	0	0	0	0	1	1	1	1	1	10	97
6 days	0	0	0	0	1	1	1	1	1	1	12	1.17
7 days	0	0	0	1	1	1	1	1	1	1	14	1.36
8 days	0	0	0	1	1	1	1	1	1	2	16	1.56
9 days	0	0	1	1	1	1	1	1	2	2	18	1.75
10 days	0	0	1	1	1	1	1	2	2	2	19	1.94
11 days	0	0	1	1	1	1	1	2	2	2	21	2.14
12 days	0	0	1	1	1	1	2	2	2	2	23	2.33
13 days	0	1	1	1	1	2	2	2	2	3	25	2.53
14 days	0	1	1	1	1	2	2	2	2	3	27	2.72
15 days	0	1	1	1	1	2	2	2	3	3	29	2.92
16 days	0	1	1	1	2	2	2	2	3	3	31	3.11
17 days	0	1	1	1	2	2	2	3	3	3	33	3.31
18 days	0	1	1	1	2	2	2	3	3	4	35	3.50
19 days	0	1	1	1	2	2	3	3	3	4	37	3.69
20 days	0	1	1	2	2	2	3	3	4	4	39	3.89
21 days	0	1	1	2	2	2	3	3	4	4	41	4.08
22 days	0	1	1	2	2	3	3	3	4	4	43	4.28
23 days	0	1	1	2	2	3	3	4	4	4	45	4.47
24 days	0	1	1	2	2	3	3	4	4	5	47	4.67
25 days	0	1	1	2	2	3	3	4	4	5	49	4.86
26 days	1	1	2	2	3	3	4	4	5	5	51	5.06
27 days	1	1	2	2	3	3	4	4	5	5	53	5.25
28 days	1	1	2	2	3	3	4	4	5	5	54	5.44
29 days	1	1	2	2	3	3	4	5	5	6	56	5.64
1 month	1	1	2	2	3	4	4	5	5	6	58	5.83
2 months	1	2	4	5	6	7	8	9	11	12	1.17	11.67
3 months	2	4	5	7	9	11	12	14	16	18	1.75	17.50
4 months	2	5	7	9	12	14	16	19	21	23	2.33	23.33
5 months	3	6	9	12	15	18	20	23	26	29	2.92	29.17
6 Months	4	7	11	14	18	21	25	28	32	35	3.50	35.00
7 months	4	8	12	16	20	25	29	33	37	41	4.08	40.83
8 months	5	9	14	17	23	28	33	37	42	47	4.67	46.67
9 months	5	11	16	21	26	32	37	42	47	53	5.25	52.50
10 months	6	12	18	23	29	35	41	47	53	58	5.83	58.33
11 months	6	13	19	26	32	39	45	51	58	64	6.42	64.17
1 year	7	14	21	28	35	42	49	56	63	70	7.00	70.00

INTEREST TABLE.

Eight Per Cent.

Time.	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10	$100	$1,000
1 day	0	0	0	0	0	0	0	0	0	0	2	22
2 days	0	0	0	0	0	0	0	0	0	0	4	44
3 days	0	0	0	0	0	0	0	1	1	1	7	67
4 days	0	0	0	0	0	1	1	1	1	1	9	89
5 days	0	0	0	0	1	1	1	1	1	1	11	1.11
6 days	0	0	0	1	1	1	1	1	1	1	13	1.33
7 days	0	0	0	1	1	1	1	1	1	2	16	1.56
8 days	0	0	1	1	1	1	1	1	2	2	18	1.78
9 days	0	0	1	1	1	1	1	2	2	2	20	2.00
10 days	0	0	1	1	1	1	2	2	2	2	22	2.22
11 days	0	0	1	1	1	1	2	2	2	2	24	2.44
12 days	0	1	1	1	1	2	2	2	2	3	27	2.67
13 days	0	1	1	1	1	2	2	2	3	3	29	2.89
14 days	0	1	1	1	2	2	2	2	3	3	31	3.11
15 days	0	1	1	1	2	2	2	3	3	3	33	3.33
16 days	0	1	1	1	2	2	2	3	3	4	36	3.56
17 days	0	1	1	2	2	2	3	3	3	4	38	3.78
18 days	0	1	1	2	2	2	3	3	4	4	40	4.00
19 days	0	1	1	2	2	3	3	3	4	4	42	4.22
20 days	0	1	1	2	2	3	3	4	4	4	44	4.44
21 days	0	1	1	2	2	3	3	4	4	5	47	4.67
22 days	0	1	1	2	2	3	3	4	4	5	49	4.89
23 days	1	1	2	2	3	3	4	4	5	5	51	5.11
24 days	1	1	2	2	3	3	4	4	5	5	53	5.33
25 days	1	1	2	2	3	3	4	4	5	6	56	5.56
26 days	1	1	2	2	3	3	4	5	5	6	58	5.78
27 days	1	1	2	2	3	4	4	5	5	6	60	6.00
28 days	1	1	2	2	3	4	4	5	6	6	62	6.22
29 days	1	1	2	3	3	4	5	5	6	6	64	6.44
1 month	1	1	2	3	3	4	5	5	6	7	67	6.67
2 months	1	3	4	5	7	8	9	11	12	13	1.33	13.33
3 months	2	4	6	8	10	12	14	16	18	20	2.00	20.00
4 months	3	5	8	11	13	16	19	21	24	27	2.67	26.67
5 months	3	7	10	13	17	20	23	27	30	33	3.33	33.33
6 months	4	8	12	16	20	24	28	32	36	40	4.00	40.00
7 months	5	9	14	19	23	28	33	37	42	47	4.67	46.00
8 months	5	11	16	21	27	32	37	43	48	53	5.33	53.33
9 months	6	12	18	24	30	36	42	48	54	60	6.00	60.00
10 months	7	13	20	27	33	40	47	53	60	67	6.67	66.67
11 months	7	15	22	29	37	44	51	59	66	73	7.33	73.33
1 year	8	16	24	32	40	48	56	64	72	80	8.00	80.00

INTEREST TABLE.

Nine Per Cent.

Time.	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10	$100	$1,000
1 day	0	0	0	0	0	0	0	0	0	0	3	25
2 days	0	0	0	0	0	0	0	0	0	1	5	50
3 days	0	0	0	0	0	0	1	1	1	1	8	75
4 days	0	0	0	0	1	1	1	1	1	1	10	1.00
5 days	0	0	0	1	1	1	1	1	1	1	13	1.25
6 days	0	0	0	1	1	1	1	1	1	2	15	1.50
7 days	0	0	1	1	1	1	1	1	2	2	18	1.75
8 days	0	0	1	1	1	1	1	2	2	2	20	2.00
9 days	0	0	1	1	1	1	2	2	2	2	23	2.25
10 days	0	1	1	1	1	2	2	2	2	3	25	2.50
11 days	0	1	1	1	1	2	2	2	2	3	28	2.75
12 days	0	1	1	1	2	2	2	2	3	3	30	3.00
13 days	0	1	1	1	2	2	2	3	3	3	33	3.25
14 days	0	1	1	1	2	2	2	3	3	4	35	3.50
15 days	0	1	1	2	2	2	3	3	3	4	38	3.75
16 days	0	1	1	2	2	2	3	3	4	4	40	4.00
17 days	0	1	1	2	2	3	3	3	4	4	43	4.25
18 days	0	1	1	2	2	3	3	4	4	5	45	4.50
19 days	0	1	1	2	2	3	3	4	4	5	48	4.75
20 days	1	1	2	2	3	3	4	4	5	5	50	5.00
21 days	1	1	2	2	3	3	4	4	5	5	53	5.25
22 days	1	1	2	2	3	3	4	4	5	6	55	5.50
23 days	1	1	2	2	3	3	4	5	5	6	58	5.75
24 days	1	1	2	2	3	4	4	5	5	6	60	6.00
25 days	1	1	2	3	3	4	4	5	6	6	63	6.25
26 days	1	1	2	3	3	4	5	5	6	7	65	6.50
27 days	1	1	2	3	3	4	5	5	6	7	68	6.75
28 days	1	1	2	3	4	4	5	6	6	7	70	7.00
29 days	1	1	2	3	4	4	5	6	7	7	73	7.25
1 month	1	2	2	3	4	5	5	6	7	8	75	7.50
2 months	2	3	5	6	8	9	11	12	14	15	1.50	15.00
3 months	2	5	7	9	11	14	16	18	20	23	2.25	22.50
4 months	3	6	9	12	15	18	21	24	27	30	3.00	30.00
5 months	4	8	11	15	19	23	26	30	34	38	3.75	37.50
6 months	5	9	14	18	23	27	32	36	41	45	4.50	45.00
7 months	5	11	16	21	26	32	37	42	47	53	5.25	52.50
8 months	6	12	18	24	30	36	42	48	54	60	6.00	60.00
9 months	7	14	20	27	34	41	47	54	61	68	6.75	67.50
10 months	8	15	23	30	38	45	53	60	68	75	7.50	75.00
11 months	8	17	25	33	41	50	58	66	74	83	8.25	82.50
1 year	9	18	27	36	45	54	63	72	81	90	9.00	90.00

INTEREST TABLE.

Ten Per Cent.

Time.	$1	$2	$3	$4	$5	$6	$7	$8	$9	$10	$100	$1,000
1 day	0	0	0	0	0	0	0	0	0	0	3	28
2 days	0	0	0	0	0	0	0	0	1	1	6	56
3 days	0	0	0	0	0	1	1	1	1	1	8	83
4 days	0	0	0	0	1	1	1	1	1	1	11	1.11
5 days	0	0	0	1	1	1	1	1	1	1	14	1.39
6 days	0	0	1	1	1	1	1	1	2	2	17	1.67
7 days	0	0	1	1	1	1	1	2	2	2	19	2.94
8 days	0	0	1	1	1	1	2	2	2	2	22	2.22
9 days	0	1	1	1	1	2	2	2	2	3	25	2.50
10 days	0	1	1	1	1	2	2	2	3	3	28	2.78
11 days	0	1	1	1	2	2	2	2	3	3	31	3.06
12 days	0	1	1	1	2	2	2	3	3	3	33	3.33
13 days	0	1	1	1	2	2	3	3	3	4	36	3.61
14 days	0	1	1	2	2	2	3	3	4	4	39	3.89
15 days	0	1	1	2	2	3	3	3	4	4	42	4.17
16 days	0	1	1	2	2	3	3	4	4	4	44	4.44
17 days	0	1	1	2	2	3	3	4	4	5	47	4.72
18 days	1	1	2	2	3	3	4	4	5	5	50	5.00
19 days	1	1	2	2	3	3	4	4	5	5	53	5.28
20 days	1	1	2	2	3	3	4	4	5	6	56	5.56
21 days	1	1	2	2	3	4	4	5	5	6	58	5.83
22 days	1	1	2	2	3	4	4	5	6	6	61	6.11
23 days	1	1	2	3	3	4	4	5	6	6	64	6.39
24 days	1	1	2	3	3	4	5	5	6	7	67	6.67
25 days	1	1	2	3	3	4	5	6	6	7	69	6.94
26 days	1	1	2	3	4	4	5	6	7	7	72	7.22
27 days	1	2	2	3	4	5	5	6	7	8	75	7.50
28 days	1	2	2	3	4	5	5	6	7	8	78	7.78
29 days	1	2	2	3	4	5	6	6	7	8	81	8.06
1 month	1	2	3	3	4	5	6	7	8	8	83	8.33
2 months	2	3	5	7	8	10	12	13	15	17	1.67	16.67
3 months	3	5	8	10	15	15	18	20	23	25	2.50	25.00
4 months	3	7	10	13	17	20	23	27	30	33	3.33	33.33
5 months	4	8	13	17	21	25	29	33	38	42	4.17	41.67
6 months	5	10	15	20	25	30	35	40	45	50	5.00	50.00
7 months	6	12	18	23	29	35	41	47	53	58	5.83	58.33
8 months	7	13	20	27	33	40	47	53	60	67	6.67	66.67
9 months	8	15	23	30	38	45	53	60	68	75	7.50	75.00
10 months	8	17	25	33	42	50	58	67	75	83	8.33	83.33
11 months	9	18	28	37	46	55	64	73	83	92	9.17	91.67
1 year	10	20	30	40	50	60	70	80	90	1.00	10.00	100.00

POULTRY.

Breeds the Most Popular.—The profits of poultry keeping being derived principally from two sources—the sale of eggs and of poultry, mostly chickens, in market, the question of breed is an important one. For eggs it would seem that, with proper attention and care, the non-sitters are preferable; but some of the varieties of non-sitters are not hardy, and the extra attention such fowls require may be greater in cost than the enhanced value of their production. Fowls have been classified, not only in respect to their qualities of flesh and as layers, but also with a view to other characteristics. The following classification, based on the statement of an experienced poultry firm in New York, is approved by Tegetmeier:

1. **Hardiness.** Hardy—Brahmas, Houdans, Hamburgs, Creve Cœurs, Spanish and Leghorns. Delicate—La Fleche, Polands and Bantams.

2. **Quietude.** Domestic and Quiet—Brahmas and Cochins. More Vivacious—Spanish, Leghorns and Dorkings. Active—Hamburgs and Games.

3. **Size of Birds.** Large—Brahmas, Cochins, La Fleche, Houdans, Creve Cœurs and Dorkings. Medium—Poland, Spanish, Leghorns and Games. Small—Hamburgs and Sultans. Diminutive—Bantams and Silkies.

4. **Size of Eggs.** Layers of Large Eggs, averaging about 7 to a pound—La Fleche, Houdans, Creve Cœurs and Black Spanish. Layers of medium eggs, averaging 8 to 9 a pound—Leghorns, Cochins, Brahmas, Polands, Dorkings, Games and Sultans. Layers of small eggs, averaging 9 to 10 to a pound—Hamburgs.

5. **Number of Eggs.** Great layers—Hamburgs, Spanish, Leghorns and Polands.

6. **Incubation.** Good sitters. —Cochins, Brahmas, Dorkings and Games. Non-sitters—Houdans, Creve Cœurs, La Fleche, Spanish, Polands, Hamburgs and Leghorns.

7. **Valuable for Flesh.** True table birds—La Fleche, Houdans, Creve Cœurs and Dorkings. Flesh less juicy—Cochins and Brahmas.

8. **For Eggs and Chickens,** which are generally equally desired, from fowls usually kept on farms, the testimony preponderates greatly in favor of the Brahmas; for, in addition to being good flesh fowls, both as to weight and quality, they are good winter, and may be considered at least fair summer layers; they are quiet, hardy and come early to maturity. Other breeds, considered superior in quality of flesh, or as egg producers, may be found more desirable, being raised with

equal success in many localities. Generally, however, the Brahma is considered the most profitable fowl for the farmer.

Rules for the Management of Poultry.—Good rules for success in the management of fowls:

1. Good dry houses, well ventilated but void of drafts.
2. Keep your hen houses clean and the floor covered with ashes.
3. Whitewash inside monthly from March 1st to October 1st.
4. Feed regularly, but never over-feed; cease feeding when the fowls cease to run for it.
5. Scatter the food on the ground when the weather will permit.
6. Feed mixed grain, or alternate, as corn one day, oats next, wheat next, etc.
7. Allow adult fowls freedom as early in the morning as they desire.
8. Keep hens with chicks in small coops (well covered and dry) until the chicks are three weeks old.
9. Feed chicks, morning, noon and afternoon.
10. Mix ground black pepper with the morning food.
11. Grease the hens well under the wings, breast and fluff feathers as soon as the chicks are taken off, with ointment made of lard and carbolic acid; 1 tablespoonful of lard to 10 drops of acid.

Age of Poultry.—Farmers usually sell poultry alive. Poulterers in towns, on the other hand, kill and pluck every sort of fowl for sale so that the purchaser has it in his power to judge of the carcass, and if he buys an inferior article at a high price it must be his own fault. It is easy to judge of a plucked fowl, whether old or young, by the state of its legs. If a hen's spur is hard, and the scales on the legs rough, she is old, whether you see her head or not; but the head will corroborate your observation, if the under bill is so stiff that you cannot bend it down and the comb thick and rough. A young hen has only the rudiments of spurs, the scales on the legs smooth, glossy and fresh colored, whatever the color may be, the claws tender and short, the under bill soft, and the comb thin and smooth. An old hen turkey has rough scales on the legs, callosities on the soles of the feet, and long strong claws; a young one, the reverse of all these marks. A young goose or duck is distinguished by the tenderness of the skin under the wings, the strength of the joints of the legs and the coarseness of the skin.

Drooping Wings.—This, in either turkeys or chickens, is caused by vermin. To cure it, grease their heads, the under sides of their wings, with lard or fried meat fat, or any other grease. In a few days these wings will be natural, and their appetite and comfort will return.

To Prevent Hens from Sitting.—Put in a trough sufficient water to make a depth of one inch; place the hen therein, and cover the top for about a day. The trough should be deep enough to allow the hen to stand up.

To Prevent the Gapes in Chickens.—Give your chickens at six weeks old wheat steeped in turpentine. This is given them once in the morning when fasting, and as a preventive against, instead of waiting for the arrival of, the gapes.

Let their food be coarse corn meal, almost dry, then give cracked corn. All poultry yards, of course, should be supplied with lime, and the chicken should have free access to pure water.

How to Make Hens Lay in Winter.—Give a portion of minced meat, mixed with other food, every day, or as often as convenient, and see that they have a plenty of gravel, old plastering or powdered egg shells. The latter may be mixed with thir food. Without some substance of this kind, which cannot be obtained when the ground is frozen or covered with snow, there will be nothing to form the shell.

To Rear Turkeys.—Choose a quiet hen for a sitter, and give her a quiet place for her nest while sitting. This is important. The usual number of eggs that a hen will cover is from 15 to 18; while sitting the hen should not be disturbed, and should not be taken from the nest after hatching for at least 24 hours, and if she appears contented allow her to stay longer. The young chicks gain strength very fast by being kept quiet for a day or two at first. It is best to watch the hatching process and if a chick is not likely to come out strong, the shell may sometimes be broken, and the chick saved. After the hen and her brood is taken from the nest, give her a large, airy coop, where the grass is closely mown off, where the chicks can bask in the sun at pleasure, and a chance to run at pleasure, and the picking up of bugs and insects.

The feed should be mostly curd, made from sour milk heated, and the whey drained off and seasoned with pepper. After a few days, if they are strong enough, they should have the range of the farm for a few hours a day. They should be housed at night and not let out in the morning until the dew is off the grass. Then by liberal feeding, whenever they come near their roosting quarters, they will be healthy and grow very fast, especially if grasshoppers are plenty, as they are some years in most sections of the country. When it is the time for the fattening seasons, they should then have all the food they can eat, of a variety such as corn, buckwheat, boiled potatoes, chopped cabbage, etc., and if kept where they can get what they will eat when they want it, they will fatten very fast. An experienced farmer gives his experience as follows: Let the mother of the new born brood choose her own time to leave the nest. Taking off is always bad policy. As soon as the nest is left, make a yard, 12 feet square, by setting boards edgeways. Remove the turkey and her brood into this little pen, wherein they should be kept for at least six days, after which they may be let out in the middle of the day, and permitted the range of an acre; but they must always be gathered at least an hour before sundown into the pens to remain until the dew is off the next morning, and all the day, if there is the least appearance of a storm. The time the mother leaves the nest, wash the naked parts of her body thoroughly with tobacco juice, to kill the inevitable lice; and at the same time dust thoroughly the young with some vermin-destroying powder. No one thing kills as many young turkeys as these parasites.

As a preventive, sulphur and snuff mixed in equal quantities, and dusted on the nest after the turkey has been sitting two weeks, is recommended; but nothing should prevent the washing of the mother, or the dusting of the young the day the mother leaves the nest, and two days after the young have left the shell. Young turkeys require but little food, but they need to be fed as often as once an hour for the first week. Coarse ground Indian meal, mixed with sour milk curds, and fine chopped hard boiled eggs is the best feed for the first month. After that the eggs may be left out, the meal ground a little coarser and the curds, if you have them, used in larger measure than at the first.

As soon as they can swallow whole grain, give them that and then all trouble in this direction is at an end. Until they are two months old, they must be driven to some shelter every night, and never be allowed to remain in the fields through a long and heavy rain. Even when one-quarter grown they will die from exhaustion, trying to follow the vigorous and unreasoning mother, if wet with but a very heavy dew. Three rules, then, must be observed, if those who attempt to raise turkeys would secure success. First—Be sure to free both old and young from lice immediately upon the old ones leaving the nest. Second—Feed frequently at the beginning with strengthening food. Third—Never let the young turkeys get wet, either with dew or rain, until their feathers afford their bodies, if not complete, at least partial, protection.

To Destroy Vermin in Poultry.—Dampen the skin under the feathers with water and sprinkle a little sulphur on the skin.

Remedy for Blindness.—Laudanum, 1 teaspoonful; water, 1 teaspoonful. Drop a few drops into the chicken's eye and bathe the chicken with warm water.

Chicken Cholera.—Alum, 2 ounces; Resin, 2 ounces; Copperas, 2 ounces; Lac Sulphur, 2 ounces; Cayenne Pepper, 2 ounces. Pulverize, then mix three tablespoonfuls of the powder with one quart corn meal, and dampen for use.

Diseases of Geese.—It is bad management to allow geese to roam around in damp, foggy weather. Colds and fogs are extremely injurious to them, as they are subject to diarrhea and giddiness. The remedy for the first is juniper berries boiled with parings of quinces and acorns. The remedy recommended by Main is to bleed the bird with a pin or needle, piercing a very prominent vein situated under the skin, which separates the claws. Geese have what is known as glanders, roup, etc. The remedy in that case would be to give a half-teaspoonful of a solution of common salt.

Antimonial powder given in grain doses, with sopped bread, twice a day.

BEES.

Hints to Bee-Keepers.—An Australian bee-keeper throws out these ideas that may be of value to honey-producers elsewhere: First of all, let it be your constant aim to keep your colonies as strong as possible. Never allow them to throw more than one swarm—whether honey or increase be your object, it matters not. Most eminent apiarians seem, in this respect, at all events, to be unanimous, and so I think we ought to be—cent. per cent. should satisfy anyone; at all events, try it under favorable conditions, and I have no fear to leave the issue in your hands. Never, if you can otherwise avoid it go between the bees and their fly-hole, and you will escape many a sting. When you open the hive prevent jarring as much as possible, for it only angers the bees when you knock the hive about, and makes them readier to attack you; but never flinch when they shoot only at you or onto your hand, and you will find that you will seldom get a sting. Be sparing of smoke, unless they are really vicious, but then master them by all means.

Always remember that it is easier for you to take the bees to a distant pasture than for the bees to take advantage of such pasture. When far away it will not benefit bees much, far less yourself; it will only be a from-hand-to-mouth affair with them if they have far to go. Never feed your bees outside, nor leave any combs about the hives; see that they have sufficient honey in winter, or in fact at any time, and you will not be much pestered with robbers. Also, never allow a colony to remian queenless longer than a day without giving them the material to raise another queen. Remember the loss a queen is to a colony during a single day when honey is plentiful outside.

Then, as to putting on the supers. Unless your stock hive is filled don't expect the bees to go up into the super; it is only when their storage room in the brood hive is insufficient that they will look for room above, and if you act upon my advice in regard to compelling brood-rearing, you will leave them but little storage room indeed in the brood-hive. Of course when brood rearing is pretty well at an end, they will fill all empty brood combs with both honey and pollen for winter use, and in case you might over-reach yourself and the bees, by depriving them of too much. I will show you how you may always be on the safe side: Ascertain the weight of your hive; add to this about 8 pounds—the weight of combs and bees—and when the hive shows another twenty pounds or twenty-five pounds above that, then you may rest satisfied that that colony will not perish during winter for want of sufficient food.

The Swarming of Bees.—There are no certain signs as to just when a colony will swarm, so far as outside indications will show, more than the clustering of bees on the outside of the hive, and the hanging of pollen-gatherers with the cluster outside, instead of entering their hives, but by examining the frame frequently, watching the progress, one can soon tell when they are about ready to cast a swarm, and as soon as the queen cells are about ready to cap over, is the best time to divide. Probably the safest and easiest way to divide is, as soon as they are ready, lift out the frame, bees, brood and all, on which the queen is found; place this frame in the new hive, filling out with frames of comb or foundation, or, if you do not have either, fill out with empty frames. Now place the new hive containing the old queen or the old stand, moving the hive to a new locality. By this plan you throw nearly all the working bees where the most work is to be done in the new hive, and they will proceed to work the same as though they had swarmed naturally.

But if the old bees had made up their mind to swarm, and you had left a queen cell on the frames you had placed in the new hive, they will sometimes swarm anyhow, so you will notice to tear them down, if any exist, before closing them up. The brood in the old hive hatching out very rapidly will soon make a good colony. The space in the old hive from where you removed the same should be filled with comb or foundation, for if an empty frame be placed there the bees will fill it with drone comb, as they seldom make anything else while without a laying queen. In eight or night days after dividing, all the queen-cells except one should be taken out, so as not to cause after-swarms.

How to Make a Box Hive.—The shape of the box should be long from front to rear, 15 inches deep, 12 wide and 12 high. Inch boards, unplaned, are the best, and the boards should be well seasoned and carefully put together. The hive should set in a groove in the bottom board and not be fastened to it. Place two or three half-inch sticks, crossing each way in the middle of the hive, aids to support the combs. One-quarter inch from the top of the hive fasten slats four to six inches in width of one-half inch stuff, leaving cracks from one-quarter to one-third inch in width between them. Over the top of the hive place a cover, projecting on every side, and fasten the same to the hive by small hooks, which not only give you a movable top and bottom board, but also a honey board. This is as near a movable comb hive as we can mention.

Honey.—The color of the honey shows whether it is fine or inferior. If it be wanted to press some in the comb, choose the finest and those that have not been broken; wrap each comb in white paper, such as lines the blue cover of loaf sugar. Set it edgewise as it stood in the hive and it may be preserved many months. The combs meant to be drained must be cut in slices. Lay them on a hair-search, supported by a rack over the jar in which the honey is to remain; for the less it is stirred after draining, the better it keeps.

Fill the jar to the brim, as a little scum must be taken off when it has settled. A bladder well washed in lukewarm water ought to be laid over the double fold of white paper with which it is covered.

Adulteration.—The adulterations of honey are numerous. Starch, chalk, calcined gypsum and even pipe clay have been used. Of late years, however, the adulteration of honey consists chiefly in adding glucose, a sugar now largely manufactured from corn, but only containing about 34 per cent. of saccharine, calling cane sugar 100. The adulteration by means of starch, chalk, etc., may be easily detected by heating the honey and letting it stand, when the impurities will settle to the bottom. Honey adulterated with glucose is more difficult of detection. Combs once used are even filled with the mixture. For this reason pure white comb, capped by the bees, commands fully double the price in the markets of strained honey.

To Take Honey Without Disturbing the Bees.—In the dusk of the evening, when the bees are quietly lodged, approach the hive and turn it gently over. Having steadily placed it in a small pit previously dug to receive it, with its bottom upward, cover it with a clean new hive, which has been properly prepared, with a few sticks across the inside of it and rubbed with aromatic herbs. Having carefully adjusted the mouth of each hive to the other, so that no aperature remains between them, take a small stick and beat gently around the sides of the lower hive for about ten minutes or a quarter of an hour, in which time the bees will leave their cells in the lower hive, ascend and adhere to the upper one. Then gently lift the new hive, with all its little tenants, and place it on the stand from which the other was taken. This should be done sometime in the week preceding midsummer day, that the bees may have time before the sommer flowers have faded, to lay in a new stock of honey, which they will not fail to do, for their subsistence through the winter.

FOOD FOR THE SICK.

Liebig's Soup for Children.—It is with that remarkable estimation of the greatness of small things which is the most valuable of his many high intellectual qualities, and with a tender appreciation of the importance of small people, that Baron Liebig devotes a special article in an English scientific periodical to the description of a new diet which he conceives to be the most fitting substitute for the natural nutriment of children robbed of their mother's milk. It is well known that cow's milk does not adequately represent the milk of a healthy woman, and when wheaten flour is added, as it commonly is, Liebig points out that, although the starch be not unfitting for the nourishment of infants, the change of it into sugar in the stomach during digestion imposes an unnecessary labor on the organization, which will be spared it if the starch be changed into the soluble forms of sugar and dextrine. This he effects by adding to the wheaten flour a certain quantity of malt. As wheaten flour and malt flour contain less alkali than woman's milk he supplies this when preparing the soup. This soup may be shortly prepared as follows: "Half an ounce of wheaten flour and an equal quantity of malt flour; 7¼ grains of bicarbonate of potash, and 1 ounce of water, are to be well mixed; 5 ounces of cow's milk are then to be added, and the whole put on a gentle fire; when the mixture begins to thicken it is removed from the fire, stirred during 5 minutes, heated and stirred again until it becomes fluid, and finally made to boil. After the separation of the bran by a sieve it is ready for use. By boiling it for a few minutes it loses all taste of the flour." The immediate inducement for Baron Liebig making this soup arose from the fact that one of his grandchildren could not be suckled by its mother, and that another required, besides his mother's milk, a more concentrated food. The soup proved an excellent food—the children thrived on it.

Liebig's Soup for Invalids.—Take ½ pound of newly killed beef or fowl, chop it fine, add 1⅛ pounds of distilled water, with 4 drops of pure muriatic acid, and 34 to 67 grains of common salt, and stir well together. After an hour the whole is to be thrown on a conical hair sieve, and the fluid allowed to flow through without any pressure. The first thick portions which pass through are to be returned to the sieve, until the fluid runs off quite clear. Half a pound of distilled water is to be poured, in small portions at a time, on the flesh residue in the sieve. There will be obtained in this way about 1 pound of fluid (cold extract of flesh), of a red color, and having a pleasant taste of soup. The invalid is allowed to take it cold, a cupful at a time, at pleasure. It must not be heated, as it becomes muddy by heat, and deposits a thick coagulum of albumen and coloring matter of blood. In soup prepared in the usual way by boiling, all those constituents of flesh are wanting which are necessary for the formation of blood albumen; and the yolk of egg, which is added, is poor in those substances, for it contains in all 82½ per cent of water and fat, and only 17½ per cent of a substance, the same or very similar to albumen of egg. But whether it is equal in its power of nutrition to the albumen of flesh, is at least doubtful from the experiments of Magendie. Besides the albumen of flesh, the new soup contains a certain quantity of coloring matter of blood, and with it a much larger quantity of the necessary iron for the formation of the blood corpuscles, and finally, the muriatic acid to assist digestion. A great obstacle to the use of this soup in summer is its liability to change in warm weather. It enters into fermentation like sugar with yeast, but without acquiring a bad odor. What may be the substance which gives rise to this fermentation is a question well worthy of being investigated. The extraction of the flesh must consequently be made with very cold water, and in a cool place. Iced water, and external cooling with ice, completely removes this difficulty. But the most important point to be attended to is to employ meat quite recently killed, and not several days old. The soup has been successfully employed in low fevers and the summer complaint of children.

Decoction of Barley or Barley Water.—Pearl Barley, 2 ounces; boiling water, 2 quarts.

Before adding the boiling water, let the barley be well washed, then boil it to one-half and strain the liquor. A little lemon juice and sugar may be added if desirable. To be taken as desired in inflammatory diseases.

Rice Water.—Rice, 2 ounces. Let it be well washed, and add to it 2 quarts of water. Boil it for an hour and a half and then add sugar and nutmeg as much as may be required. To be taken ab libitum.

Rice, when boiled for a considerable time, assumes a gelatinous form, and, mixed with milk, is an excellent diet for children. It possesses in some measure a constipating property, which may be increased by boiling the milk.

Infusion of Flaxseed.—Linseed, 1 ounce; Liquorice Root, ½ ounce; boiling water, 2 pints. Macerate for two or three hours near the fire, in a covered vessel; strain, and add lemon juice sufficient to make it agreeable. It may be given as a common drink in catarrh.

Decoction of Bran.—Fresh wheat bran, 1 pint; water, 3 quarts. Boil down one-third. Strain off the liquor and add sugar, honey or molasses, according to the taste of the patient.

Bran tea may be made by using boiling water, and allowing the mixture to stand in a covered vessel for three or four hours.

Mucilage of Gum Arabic.—As an article of diet, the proper proportions are an ounce of gum arabic to a pint of boiling water. The solution is allowed to cool before it is used. Gum

Arabic is very nutritive and life can be sustained on it aolne for some time.

Sage Tea.—Dry Leaves of Sage, ½ ounce; boiling water, 1 quart. Infuse for half an hour and then strain. Sugar and lemon juice may be added in the proportion required by the patient. In the same manner may be made balm and other teas.

These infusions form very agreeable and useful drinks in fever, and their diaphoretic powers may be increased by the addition of the sweet spirit of nitre or antimonial wine.

Infusion of Malt.—Ground malt, 1 pint; scalding water, 3 pints. Infuse for two hours and strain off the liquor, to which may be added sugar or lemon juice, if required.

Milk for Infants.—Cow's milk, 1 part; water, 2 parts; loaf sugar, as much as may be agreeable. It is necessary, when children are to be raised by the hand, to dilute the milk. These proportions may be altered as the child advances in age. The object is to make a diet as nearly like the maternal milk as possible.

Rice Gruel.—Ground rice, 1 ounce; cinnamon, 1 drachm; water, 1 quart. Boil for 40 minutes, adding the aromatic near the conclusion. Strain and sweeten. Wine may be added, if necessary.

Jelly of Carrageen, or Irish Moss.—Carrageen, ½ ounce; fresh milk, 1½ pints. Boil them down to a pint; remove any sediment by filtering or otherwise, and then add the requisite quantity of sugar, with lemon juice or peach water, to give it an agreable flavor. To be used freely.

The moss, before being used, should be well washed in cold water, to remove its saline taste.

Boiled Flour.—Fine flour, 1 pound. Tie it up in a linen cloth as tightly as possible, and, after frequently dipping it in cold water, dredge the outside with flour until a crust is formed around it, which will prevent the water from soaking into it while boiling. It is then to be boiled until it becomes a hard, dry mass.

Two or three spoonsful of this may be grated and prepared in the same manner as arrowroot, for which it forms an excellent substitute.

Calf's Foot Jelly.—To 2 calf's feet add 1 gallon of water, which reduce by boiling to 1 quart. Strain it and when cold skim the fat entirely off; add to this the whites of 6 or 8 eggs well beaten, a pint of wine, half a pound of loaf sugar, and the juice of four lemons, and let them be well mixed and boiled for a few minutes and strained.

Beef Tea.—Lean beef, cut into shreds, 1 pound; water, 1 quart. Boil it for 20 minutes, taking off the scum as it rises. After it grows cold, strain the liquor.

This preparation is more nourishing than ordinary broths, and very palatable.

Hartshorn Jelly.—Hartshorn shavings, 4 ounces; water, 1 quart. Boil over a gentle fire until 1 pint of the water is dissipated. Strain and add lemon juice, sugar and wine.

This forms, either with or without the last-named ingredients a very nourishing diet for convalescents, and, when mixed with an equal portion of milk, is well adapted to the bowel complaints of children.

Isinglass or fish glue may be used instead of the hartshorn shavings, if preferred.

Chocolate.—Chocolate should be suffered to stand until cold, after having been made in the usual way. The oily parts thus collect on the surface, and should be taken off. The liquid should then be boiled again, and sugar, etc., added.

Crust Coffee.—Toast bread very brown, pour on boiling water, strain and add cream, sugar and nutmeg, if desired.

Sage Custard.—Soak 2 tablespoons of sago in a tumbler of water an hour or more, then boil in same water until clear, and add a tumbler of sweet milk; when it boils, add sugar to taste, then a beaten egg and flavoring.

Chicken Broth.—Take the first and second joints of a chicken, boil in 1 quart of water till very tender, and season with a very little salt and pepper.

Pearled Wheat Pudding.—One pint of wheat, ½ gallon new milk, sweeten and flavor to taste; bake 1 hour. This is a delicious and simple pudding.

Fever Drink.—Pour cold water on wheat bran; let boil for half an hour; strain and add sugar and lemon juice; pour boiling water on flax-seed; let stand till it is ropy; pour it into hot lemonade and drink.

Barley Water.—Add 2 ounces pearl-barley to ½ pint boiling water; let simmer 5 minutes; drain and add 2 quarts boiling water, and add 2 ounces sliced figs and 2 ounces steamed raisins; boil until reduced to a quart; strain for a drink.

Beef Tea Soup.—To 1 pint of "beef essence," quite hot, add a teacup of the best cream, well heated, into which the yolk of a fresh egg has been previously stirred; mix carefully together and season slightly, and serve.

Oat Meal Blanc-Mange.—A delicious blanc-mange is made by stirirng two heaping teaspoons of oatmeal into a little cold water; then stir with a quart of boiling milk; flavor, and pour into molds to cool, when cream or jelly may be eaten with it.

Oat Meal Gruel.—Put 2 heaping tablespoons oatmeal in 1 quart of cold water; stir till it commences to boil, then cook 1 hour, stirring occasionally; do not let it scorch; season with salt, sugar, and any spice desired. For infants and very sick patients it may be strained and not salted.

Broiled Chicken, Quail, Squirrel or Woodcock.—Any of these must be tender. Take the breast of the first two, or the thighs of the others; place on hot coals or on a broiler, turning often to prevent burning; when done, remove the burned parts, if any; season slightly with butter, pepper and salt, and serve at once.

Rice Jelly.—Mix one heaped teaspoon of rice flour with cold water until it is a smooth paste, add a scant pint of boiling water, sweeten with loaf sugar; boil until quite clear. If the jelly is intended for a patient with summer complaint, stir with a stick of cinnamon; if for one with fever, flavor with lemon juice, and mold. Rice water is made in the same manner, by using twice the quantity of boiling water.

Arrow-Root Custard.—One tablespoonful of arrowroot, 1 pint of milk, 1 egg, two tablespoons of sugar; mix the arrowroot with a little of the cold milk; put the rest of the milk on the fire and boil, and stir in the arrowroot and egg and sugar, well beaten together; scald and pour into cups to cool; any flavoring the invalid may prefer, to be added.

Tapioca Jelly.—One-half pint tapioca, 1 quart water, juice and some of the grated rind of a lemon; soak the tapioca for 3 or 4 hours in the water, sweeten it and boil for 1 hour in a custard kettle, or until quite clear, stirring it often; when almost done stir in the lemon, and when sufficiently cooked pour into moulds. Serve with sweetened cream.

Raspberry Vinegar.—Pour over 2 quarts of raspberries in a stone jar, 1 quart of best vinegar; let stand 24 hours, strain and pour liquor over fresh fruit, and let stand in the same way; allow 1 pound sugar to a pint of juice; put into a stone jar, and set in pot of boiling water 1 hour; skim well, put into bottles, cork and seal tight. Diluted with water. This is very nice for the sick. Toasted bread may be eaten with it.

Strawberry Acid.—Dissolve 5 ounces tartaric acid in 2 quarts of water, and pour it upon 12 pounds of strawberries in a porcelain kettle, let it simmer 48 hours; strain it, taking care not to bruise the fruit. To every pint of juice add 1½ pounds of sugar and stir until dissolved, then leave it a few days. Bottle and cork tightly; if a slight fermentation takes place, leave out the cork a few days. Then cork, seal and keep bottles in cool place.

Oatmeal Pie Crust.—This is made exactly like the dough for crackers; it may be rolled a little thinner. It bakes quickly, so that care must be taken not to scorch it in cooking the contents of the pie. It is not suited for an upper crust, but does admirably for pies that require but one crust. It is just the thing for those who do not think shortened pie crusts wholesome, and it is good enough for anyone to eat. One can eat it with as much impunity as so much oatmeal mush and fruit sauce.

Mutton Broth.—Put 2 pounds of mutton and two quarts of cold water to boil; add 1 tablespoon of rice, washed carefully through several waters. Let it boil until the meat will leave the bone and the rice is cooked to a liquid mass. Take from the fire, season with a little salt; skim, if preferred. If for a patient with flux, leave on all the fat (the more fat the better).

This is also a nice way to make chicken broth. Take a chicken the size of a quail, and prepare as above.

Uncooked Egg.—This is quite palatable and very strengthening, and may be prepared in a variety of ways. Break an egg into a goblet and beat thoroughly, add a teaspoon of sugar, and after beating a moment, add a teaspoon of brandy or port wine; beat well and add as much rich milk, or part cream and milk, as there is in the mixture. Or, omit brandy, and flavor with any kind of spice; or milk need not be added, or the egg may be beaten separately, stirring in lightly the well-whipped whites at the last.

Cracked Wheat Pudding.—To 1 quart of new or unskimmed milk add one-third cup cracked wheat, same of sugar (or a little more if preferred), a little salt, and a small piece of stick cinnamon. Place in modern oven and bake 2 hours or longer. When about half done stir in the crust already formed, and it will form another sufficiently brown. When done the wheat will be very soft, and the pudding of a creamy consistency. It can be eaten hot or cold, and is very nice for invalids. A handful of raisins added is considered an improvement by some.

Broiled Beefsteak.—Many times a small piece of "tenderloin" or "porterhouse" is more wholesome for an invalid than broths and teas, and with this may be served a potato, roasted in the ashes, dressed with sweet cream, or a little butter, salt, or nicely cooked tomatoes. Have the steak from half an inch to an inch thick, broil carefully two or three minutes over hot coals, turning often with a knife and fork, so as not to pierce it. When done, put on a small dish, season slightly with salt and pepper and a small bit of butter, garnish with the potatoes, and serve hot.

Stewed Oysters.—Remove all bits of shell from half a dozen fresh, select oysters, place in a colander, pour over a teacup of hot water, drain, place liquor drained off in a porcelain lined saucepan, let come to a boiling point, skim well, pour off into another heated dish all except the last spoonful, which will contain sediments and bits of shell which may have been overlooked; wipe out saucepan, return liquor, add oysters, let come to a boiling point, add a small lump of butter, a teaspoon of cracker dust, a very little cayenne pepper and salt, and a half cup of fresh, sweet cream.

Prepared Flour for Summer Complaint.—Take a double handful of flour, tie up tightly in cloth, put in a kettle of boiling water, boil from three to six hours; take out, remove the cloth, and you will have a hard round ball. Keep in cool, dry place, and when wanted for use, prepare by placing some sweet milk (new always preferred), to boil, and grating into the milk from the ball enough to make it as thick as you desire, stirring as you remove it from the stove with a stick of cinnamon; this gives it a pleasant flavor. Put a little salt into the milk.

Very good for children having summer complaint.

Meat for Invalids.—The following method for rendering raw meat palatable to invalids is given by good authority: To 8.7 ounces of raw meat, from the loin, add 2.6 ounces of shelled sweet almonds, .17 ounce of shelled bitter almonds, and 2.8 ounces of white sugar; these to be beaten together in a marble mortar to a uniform pulp, and the fibres separated by a strainer. The pulp, which has a rosy hue and a very agreeable taste, does not at all remind one of meat, and may be kept fresh for a considerable time, even in summer, in a dry, cool place. The yolk of an egg may be added to it. From this pulp, or directly from the above substance, an emulsion may be prepared which will be rendered still more nutritious by adding milk.

Old Time Food for Convalescents.—Roast good potatoes in ashes or coals; when done, put in a coarse cloth and squeeze with the hand, and take out the inside on a plate. Put a good slice of pickled pork on a stick 3 or 4 feet long; hold it before a wood fire until it cooks slightly; then dip into a pan of water; and let it drip on the potato to season it; repeat until the meat is nicely cooked on one side; then turn the other; dip in water, etc. When done, place on plate, beside the potato; serve with a slice of toast dressed with hot water and a little vinegar and salt, or use sweet cream instead of vinegar. A cup of sage tea, made by pouring boiling water on a few leaves of sage, and allowing it to stand a few minutes, served with cream and sugar, is very nice, or crust coffee, or any herb tea is good. Food prepared in this way obviates the use of butter.

Beef Tea.—Cut a pound of the best lean steak in small pieces; place in glass fruit jar; cover tightly and set in a pot of cold water; heat gradually to boil, and continue this steadily three or four hours, until the meat is like white rags and the juice thoroughly extracted; season with very little salt; strain through a wire strainer, serve either warm or cold. To prevent jar toppling over, tie a string around the top part and hang over a stick laid across the pot; when done, set pot off from stove, and let cool before removing the jar, and in this way prevent breakage; or when beef tea is wanted for immediate use, place in a common pint bowl; add very little water, cover with a saucer, and place in a moderate oven; if in danger of burning add a little more water. To make beef tea more palatable for some patients, freeze it.

Corn Meal Gruel.—Add to 3 pints boiling water 2 tablespoons corn meal, stirred up with a little cold water; add a pinch of salt, and cook 20 minutes. For very sick persons let it settle; pour off the top, and give without seasoning. For convalescents, toast a piece of bread nicely, and put in the gruel with 1 or 2 tablespoons sweet cream, a little sugar and ginger, or nutmeg and cinnamon; when a laxative diet is allowed this is very nourishing. Or, take a pint of meal, pour over it 2 pints of cold water; stir up; let settle a moment, and pour off the water; repeat this three times, then put the washed meal into 3 quarts of cold water and place where it will boil; cook 3 hours, and when done add a pinch of salt. This is a very delicate way of cooking, and it may be eaten with or without other seasoning.

Rice Water.—Wash 4 tablespoons of rice, which boil down to 1 quart, then add sugar and a little nutmeg. This makes a pleasant drink. A pint or a half a pint of milk added to the rice water, before it is taken from the fire, gives a nourishing food suitable for cases of diarrhea. Sago, tapioca, barley, or cracked corn can be prepared in the same manner.

Raw Beef for Children.—Take half a pound of juicy beef, free from any fat; mince it very finely; then rub it into a very smooth pulp, either in a mortar or with an ordinary potato masher, and press it through a fine sieve. Spread a little out upon a plate and sprinkle over it some salt, or some sugar, if the child prefers it. Give it alone or spread upon a buttered slice of stale bread. It makes an excellent food for children with dysentery.

Beef Tea.—Take a pound of juicy lean beef and mince it. Put it with its juice in an earthen vessel containing a pint of tepid water, and let the whole stand for one hour. Slowly heat to boiling point, and let boil for three minutes. Strain liquid through a colander and stir in a little salt. If preferred, a little pepper or allspice may be added.

THE GERM THEORY.

According to the Germ Theory diseases are communicated to the body by very small germs or spores capable of being seen only under the miscroscope. These germs have an existence of their own and multiply after their kind by millions under circumstances and surroundings peculiar to their individual species. They enter the blood and tissues of the body by various channels and cause obstructions and irritations and destruction in ways peculiar to themselves.

The period which elapses between the time of being exposed to a disease and the time of its manifestation, represents the time required for the germination of the disease germs. The violence of the attack is in proportion to the number of germs which have developed. During the disease the germs consume for their support, certain principles of the body, so that when that is exhausted the germs die for want of nourishment. This explains why a person who has once had small-pox, scarlet fever, etc., is not liable to contract those diseases again. It is similar to the fact that corn or any other crop raised successively on the same strip of land will exhaust the soil and cease to thrive upon it.

The germs are constantly producing billions of spores or seeds, which are cast off from the body and carried about in the atmosphere, on the clothing, in the water, etc., and are thus conveyed to other human beings to enter their bodies and develop in suitable soil.

Understanding the germ theory will aid all in efforts to avoid and overcome contageous diseases and to prevent their spread. We avoid a horde of wasps when we see them approaching, knowing that their sting is painful. We should also avoid the hordes of invisible germs ready to attack us when we know they must be present by millions in the neighborhood of contageous disease. The minuteness of the spores of disease germs may be realized by the fact that a hundred million of them could be placed upon the head of a pin. It is fortunate that these spores are carried about in masses of many thousands adhering together, rather than singly, for if each spore was wafted separately there would be no possible means of suppressing their development.

Each class of disease germs thrives best under special circumstances. The soil must be adapted to their especial propagation. Great heat, extreme cold, very dry air and an atmosphere laden with certain gases or vapors and saturation with disinfectants will destroy the spores and prevent the spread of contagion.

A person afflicted with contagious disease should be looked upon as a field of billions of disease germs, whose spores, like the thistle seeds, are certain to be blown about and settle upon ground and start to grow, unless proper methods are taken to prevent them. Germs cannot develop spontaneously any more than thistle seeds can. Every case of small-pox, scarlet fever, diphtheria, etc., must come from some other similar case, though frequently we cannot learn the place of their origin. The germs may be carried thousands of miles in the clothing or in merchandise before they develop. Of course it is difficult to guard ourselves against such a source of infection; but it is not difficult to guard against allowing disease germs to be conveyed to others from cases under our control.

An important thing to remember is the fact that the spore of disease germs thrive better in some soil than in others. A body weakened by overwork, sickness, worry, bad food or improper living is far more liable to be attacked by the growth of disease germs than the body of a perfectly healthy person. Fear of contagion weakens the nervous system and renders the body more liable to be attacked. Cleanliness and good living constitute the best safeguard against contagion.

It is a fact that most disease germs multiply best upon certain bodily tissues. Scarlet fever germs thrive best on the skin and the epithelium of fine scarlet-like dust of the skin which is shed after scarlet fever, is highly contagious, and as it is very light and easily blown about, it is a great source of spreading the disease. A sheet from the bed of a scarlet fever patient put out to air and blown into the street gave the disease to eight children who picked it up and played with it. These epithelial scales easily cling to the clothing and persons visiting in homes where scarlet fever prevails should take the greatest precaution to avoid carrying any of the spore about in their clothing. The mucous membranes of the body are especially adapted to the development of diphtheria germs, as demonstrated by growth of false membrane in the throat. Persons should be etremely cautious not to inhale the breath of diphtheria patients as every breath they inhale in laden with millions of disease germs. Clothing about them becomes saturated with spores and should never be allowed to be exposed to the atmosphere until thoroughly boiled or properly treated to destroy the spores.

Typhoid fever germs develop best in the intestinal tract and discharges from the bowels are laden with them; so that great precautions must be observed in disposing of such discharges. Over a thousand cases of typhoid fever during one epidemic were directly traced to seepage from vaults into wells and cisterns—the vaults having been used as depositories for discharges from typhoid fever patients.

Cholera germs, like those of typhoid fever, thrive in the intestinal tract and the same precautions must be observed in disposing of discharges from the bowels. The same may be said of the germs of dysentery. In hydrophobia the saliva contains the spores of the disease germs and the unmost precaution must be observed in handling such cases lest the saliva should come in contact with an abraded surface of the skin.

Whooping cough is conveyed by the breath and mothers cannot be too careful in protecting their little ones against this contagion; for it is a distressing disease and a very dangerous one, especially among infants. Fully twenty-five per cent of the children under two years of age who contract it die from its effects either directly or indirectly.

It is well to know when the spores of disease germs are most liable to be propagated in other persons. As a rule their activity commences with the onset of the disease and continues for some time after the disease has subsided. Immediately after death the germs seem to be especially virulent, and attending funerals of persons dying from contagious diseases is very dangerous. Most cities and towns have special regulations concerning the burial of such cases, and these regulations cannot be too rigidly enforced. Some diseases are propagated before they are fully developed, such as measles and whooping cough.

The manner in which contagion enters the body regulates to a certain extent the rapidity of its development. When smallpox virus is introduced into the body by inoculation it develops in nine days, while under ordinary circumstances it requires about two weeks. Scarlet fever, cholera and erysipelas develop very rapidly. Such diseases as are quickly contracted are most contagious toward the latter end of their course. Slowly contracted contagious diseases are virulent very early and become exceedingly so later on.

With all our knowledge we have not yet learned how to absolutely prevent a contagious disease from running its course. We can make attacks milder by medication and guard against death, but when the germs once enter the system and begin to develop, the disease usually runs its course, which will be short or long, according to the patient's resistive powers and the medication employed.

DISINFECTANTS.

DISINFECTANTS.—Disinfectants are substances that destroy the poisonous products of disease or substances that are liable to produce disease. Many disinfectants are very poisonous, and some of them possess most disagreeable odors; but there are a large number of comparatively harmless and pleasant disinfectants which can be procured at small cost. Their use should be universal wherever needed. A few of the principal disinfectants are as follows:

Chlorides.—A pleasant, inodorous and effective liquid preparation, known as Platt's Chlorides, may be obtained at almost any drug store. It can be sprayed about the sick room, or towels may be saturated with it and hung about the room, or a small quantity may be poured into a vessel containing offensive and poisonous discharges.

Chloride of lime is an excellent disinfectant for vaults and damp places, especially cellars where decayed vegetables have been stored.

Chlorine gas can scarcely be excelled for disinfecting a room or house in which there has been contagious disease. It is prepared by pouring vinegar upon chloride of lime. For disinfecting an ordinary room 1 lb. of chloride of lime saturated with a quart of strong vinegar in a porcelain dish should be sufficient. Close the room and also remove colored clothes which would be bleached by it. This gas is very irritating and cannot be allowed to enter apartments used for living rooms during the disinfection.

Carbolic Acid.—This is one of the most common of all disinfectants, although it is not so powerful as is usually believed. It has a disagreeable odor and may be used advantageously to overcome the foulness of bad discharges. The skin is injured by it.

Copperas, or Green Vitriol, in the proportion of 2 lbs. to a gallon of water, is useful for disinfecting drains and close and damp cellars.

Cones, or Pastiles.—There are a great many kinds of disinfecting cones or pastiles which are extremely pleasant and valuable about the sick room. They are ignited by a match and when burning give an agreeable odor. Their chief advantage lies in their convenience.

Sulphur.—Burning sulphur can scarcely be excelled in effectiveness as a disinfectant; but, like chlorine gas, its vapor can not be inhaled, and its use must therefore be confined to uninhabited apartments, tightly closed, so that the gas may not escape the house. Sulphur candles ready to light may be procured at all drug stores.

Where disease is not of a virulent or contagious nature ordinary household disinfectants may be used to destroy bad odors. Among these may be mentioned burning sugar or burning ground coffee or cinnamon.

CONTAGIOUS DISEASES.

A person suffering from contagious disease, such as smallpox, scarlet fever or diphtheria, should be confined in a room isolated as completely as possible from the rest of the house. The sick room ought to be on the top floor and have plenty of sunshine and ventilation, although no drafts should be allowed to blow over the patient. Remove all unnecessary furniture from the room, such as curtains, carpets, books, pictures and upholstered articles of any kind.

No one should be allowed in the patient's room except the physician and nurse, and they should observe the greatest precautions. The clothing of the nurse should be linen or smooth cotton goods that may be easily washed and boiled. The physician should always put on a suit of over-clothes made for the purpose and remove them immediately after leaving the room.

Utensils, dishes, etc., should be washed separately and not allowed to be mixed with other household articles. They should be placed in a dishpan and boiling water poured over them before they are taken from the room. It is always best to have a small gas stove or alcohol stove in the sick room for heating water, so as to avoid as much as possible the nurse's visits to other apartments. When possible there should be a vacant room between the sick room and the rest of the house, and the nurse should not go beyond that room, and it should be used as an intermediate place for the reception of such things as must be passed back and forth and as a place for changing clothes.

It is important that cats, dogs and other animals should not be allowed in the sick room. They may be amusing to the patient, but they easily carry disease to others. In cleaning the patient's room, care must be taken not to allow dust to permeate the house or escape through the windows. Before sweeping it is best to throw over the floor corn meal or old paper pieces or sawdust wet with some mild disinfectant. Burn all sweepings and old rags and waste material in the grate or stove in the room; or, if this cannot be done, put them into vessels containing disinfectant solution.

Never use a cuspidor or spittoon with such diseases as croup or diphtheria. Always keep some disinfectant solution in the bed-vessel.

When the patient is convalescent and danger of immediate contagion is over, the room should be rendered safe for others to enter. Bed linen, towels, gowns, etc., should be placed in a wash boiler with disinfectant solution before being removed; they should then be boiled for about an hour. It is best to burn mattresses and pillows, although they may be cleansed by great heat after having been first thoroughly disinfected.

After the patient has been removed to another room, the sick room should be made air-tight and in it should be burned at least two sulphur candles, or chlorine gas should be made by pouring a quart of vinegar on a pound of chloride of lime. Afterward air the room well and have the walls and ceilings calcimined or repapered.

HOW TO DISTINGUISH CONTAGIOUS DISEASES.—It often becomes a matter of great importance to early diagnose contagious diseases, as their early recognition may save the spread of the contagion to other members of the family or the community.

Smallpox.—Nearly all cases commence within two weeks after exposure and seldom before nine days have elapsed. At first a very severe chill comes on without warning, followed by a high fever, the temperature reaching 105 degrees or 106 degrees inside of 24 hours. There will be intense headache, vomiting and excruciating pain in the joints and back. The fever continues high for three days, when the eruption appears, usually at the upper part of the forehead, like little red spots, which are found to be hardened under the skin. Three days after the eruption the pustules form and fill with fluid; they are sunken on the top and burst about seven days after the fever commences, gradually drying into scabs which drop off. The high, continued fever at the outset and the quick relief from fever and pain when the rash appears, and the shot-like feeling beneath the skin, are special features of smallpox.

Scarlet Fever.—Within a week after exposure there will be high fever, temperature about 105 degrees, high pulse, vomiting and sore throat. Within 24 hours after the fever commences the eruption comes upon the chest and neck, as small, bright red spots, running together, not raised and spreading over the body. The fever does not subside with the appearance of the rash, which begins to fade on the fifth day. The tongue at the tip always looks like a strawberry.

Measles.—This difficulty is preceded by all the symptoms of cold in the head, with sneezing, watery eyes and coughing. In from one to two weeks after exposure fever commences and rarely gets above 102 degrees, and is lower in the mornings. On the fourth day of fever the eruption appears on the forehead and face, like little flea bites, often running together and spreading over the body, and in four or five days disappears, commencing where it first appeared. Unlike smallpox, the fever of measles will increase in severity when the eruption is progressing.

Chicken-Pox.—Four or five days after exposure the eruption appears like little raised pimples, which soon fill with a clear fluid and remain rounded. Sometimes there will be a slight fever with the appearance of the eruption, but occasionally no fever will be manifested.

Diphtheria.—Usually there will first be soreness of the throat and stiff neck with difficulty in swallowing; tonsils swollen and red. After distinct chill there will be fever and high pulse with great weakness. Within three days patches of a grayish false membrane will appear on the tonsils and fauces, which in severe cases turn dark. Great prostration always accompanies diphtheria.

German Measles is a form of rash which looks like measles or scarlet fever, but is not, as a rule, accompanied by fever. It lasts three or four days, and is of no consequence.

THE THERMOMETER IN DISEASE.

Every family should possess o clinical thermometer, which can be procured for a small sum. It is invaluable in ascertaining the temperature of the body during disease. To use it properly, place the bulb in the arm-pit in contact with the skin, pressing the arm against the body. Keep it in position for at least five minutes, and after it is read, cleanse thoroughly. Some persons place the bulb under the tongue or in the rectum.

The natural temperature of the body is 98 degrees Fahrenheit; but in rare instances, preceding death, the temperature reaches 109 degrees, and, should it be maintained at 107 degrees for a few hours, a fatal termination usually follows. When the temperature rises rapidly at the outset of any disease, the difficulty is likely to run a brief course. When the temperature rises slowly, a protracted siege may be expected. In typhoid fever the temperature usually falls in the morning, and then by evening reaches about a degree higher than on the preceding evening at the same hour, seldom rising above 105 degrees. In scarlet fever it may rise to 105 degrees or 107 degrees.

When the temperature rises the pulse should rise in a corresponding ratio, this ratio usually being an increase of eight pulse beats to each degree of temperature above the normal. Should this ratio not be maintained, at least approximately, it would be a bad omen. Very frequently little children have a sudden and high fever from stomach disorders, which of themselmes are of small importance.

WHAT TO DO UNTIL THE DOCTOR COMES.

SIGNS USED BY PHYSICIANS IN WRITING RECIPES.

℔ denotes a pound.
—, an ounce.
—, a drachm.
—, a scruple.
gr., a grain.
R, recipe.
ana, a. a., of each alike.
Coch., a spoonful.
P. Æ., equal quantities.
ss., half of anything.
iss., one and a half of anything.
q. s., sufficient quantity.
q. pl., much as you please.
Q., a pint.
M., 60th part of a fluid drachm.
i., one of anything.
ij., two of anything.
iij., three of anything.
iv., four of anything.
x., ten of anything.
xij., twelve of anything.
f., prefixed to dr. or oz., denotes fluid drachm, or ounce.
gtt., a drop.
– iv. v., a cupful.
— iss. to — ij., a wineglassful.
f. — ss., a tablespoonful.
f. — iij., a dessertspoonful.
f. — i., a teaspoonful.
Pugillas, as much as can be held between the thumb and finger.

TERMS USED TO EXPRESS THE PROPERTIES OF MEDICINES.

Absorbents are medicines which destroy acidities in the stomach and bowels, such as magnesia, prepared chalk, etc.

Alteratives are medicines which restore health to the constitution, without producing any sensible effect, such as sarsaparilla, sulphur, etc.

Analeptics are medicines that restore the strength which has been lost by sickness, such as gentian, bark, etc.

Anodynes are medicines which relieve pain, and they are divided into three kinds—paregorics, hypnotics, narcotics (see these terms); camphor is anodyne as well as narcotic.

Antacids destroy acidity, such as lime, magnesia, soda.

Antalkalies are medicines given to neutralize alkalies in the system, such as citric, nitric or sulphuric acids, etc.

Anthelmintics are medicines used to expel and destroy worms from the stomach and intestines, such as turpentine, cowhage, male fern, etc.

Antibilious are medicines which are useful in bilious affections, such as calomel, etc.

Antirhumatics are medicines used for the cure of rheumatism, such as colchicum, iodide of potash, etc.

Antiscorbutics are used against scurvy, as citric acid.

Antispasmodics are medicines which possses the power of overcoming spasms of the muscles or allaying severe pain from any cause unconnected with inflammation, such as valerian, ammonia, etc.

Aperients move the bowels gently, as dandelion root, etc.

Astringents are medicines which contract the fibers of the body, diminish excessive discharges, and act indirectly as tonics. such as oak bark, galls, etc.

Attenuants are to thin the blood, as ammoniated iron, etc.

Balsamics are medicines of a soothing kind, as Tolu, Peruvian balsam, etc.

Carminatives are medicines which allay pain in the stomach and bowels, and expel flatulence, as anise seed water.

Cathartics are strong purgative medicines, as jalap, etc.

Cordials are warming medicines, as aromatic confection.

Corroborants are medicines and food which increase the strength, such as bark, gentian, sago, etc.

Demulcents correct acrimony, diminish irritation and soften parts by covering their surfaces with a mild and viscid matter, such as linseed tea, etc.

Deobstruents are medicines which remove obstructions, such as iodide of potash, etc.

Diaphoretics produce perspiration, such as tartrate of antimony, etc.

Digestives are remedies applied to ulcers or wounds to promote the formation of matter, such as resin ointments, warm poultices, etc.

Discutients possess the power of repelling or resolving tumors, such as galbanum, etc.

Diuretics act upon the kidneys and bladder, and increase the flow of urine, such as nitre, squills, etc.

Drastics are violent purgatives, such as gamboge, etc.

Emetics produce vomiting, or the discharge of the contents of the stomach, as mustard, tartar emetic, blood-root, etc.

Emollients are remedies used externally to soften the parts they are applied to, such as spermaceti, palm oil, etc.

Escharotics are medicines which corrode or destroy the vitality of the part to which they are applied, as lunar caustic.

Expectorants are medicines which increase expectoration, or discharges from the bronchial tubes, as ipecacuanha.

Febrifuges are used in fevers, as antimonial wines, etc.

Hydragogues are medicines which have the effect of removing the fluid of dropsy by producing water evacuation, such as gamboge, calomel, etc.

Hypnotics relieve pain by producing sleep, as hops, etc.

Laxatives are medicines which cause the bowels to act rather more than natural, such as manna, etc.

Narcotics are medicines which cause sleep or stupor, and allay pain, such as opium, etc.

Nutrients are remedies that nourish the body, such as sago, etc.

Paregorics are medicines that actually assuage pain, such as compound tincture of camphor, etc.

Purgatives are medicines that promote the evacuation of the bowels, such as senna, etc.

Refrigerants are medicines which suppress an unusual heat of the body, such as wood-sorrel, tamarind, etc.

Rubefacients are medicines which cause redness of the skin, such as mustard, etc.

Sedatives are medicines which depress the nervous energy and destroy sensation, so as to compose, as foxglove, etc.

Sialagogues are medicines which promote the flow of saliva or spittle, such as salt, calomel, etc.

Soporifics induce sleep, such as hops, etc.

Stimulants are remedies which increase the action of the heart and arteries, or the energy of the part to which they are applied, such as sassafras, which is an internal stimulant, and savin, which is an external stimulant.

Stomachics restore the tone of the stomach, as gentian.

Styptics are medicines which constrict the surface of a part and prevent the effusion of blood, such as kino, etc.

Sudorifics promote profuse perspiration or sweating, such as ipecacuanha, etc.

Tonics give general strength to the constitution, restore the natural energies, and improve the tone of the system, such as chamomile, etc.

Vesicants are used to blister, as strong liquid ammonia.

For an adult (a person 40 years), the dose of common medicines is allowed about—

	1	drachm,	60	grains	2 years,	1-8	drachm,	7 to 8 grs.
20 years,	2-3	"	40	"	1 year,	1-12	"	5 "
13 years,	1-2	"	30	"	Teacup	equal to	4	fluid ounces
7 years,	1-3	"	20	"	Wineglass	"	4	"
4 years,	1-4	"	15	"	Tablespoon		1-2	"
3 years,	1-6	"	10	"	Teaspoon	"	1 drachm	

For babies under 1 year the dose should go down by months, at about the same rate as by years for those over a year.

For persons 60 years inverse the above gradation.

The above rules hold good in all medicines except castor oil, the proportion of which cannot be reduced so much, and opium and its varied preparations, which must be reduced generally in a little greater proportion.

The Sick Room.—If you are so fortunate as to have a choice of rooms, do not put your patient into one which is dark and gloomy, but let it be light and cheerful, and with a fireplace if possible. If the illness be fever, something wrong with the eyes or brain, or other sickness requiring quiet, a back room away from the family will answer best; the patient will not care to look at anything or to speak much, and quiet is necessary. But if he be suffering from an accident, let him be near the rest of the family where you can speak to him. This will help to keep him contented and cheerful, and it will save time in waiting upon him. Avoid a room which is exposed to disagreeable effluvia from any source.

Never have the window so fastened that you cannot open it, especially from the top. Be careful not to have much furniture in the room, particularly if the disease be infectious. Bear in mind that woolen articles hold smells much longer than cotton or linen, therefore do not have woolen curtains. It is better to have no curtains at all, but if the room looks bare and cheerless use light muslin, or something which will easily wash.

Have no woolen-covered sofa or chairs; cane-bottomed or plain wood are preferable, and a clean boarded floor, kept sweet by scrubbing, is infinitely better without any carpet, excepting perhaps a narrow strip for you to walk upon just to prevent noise. In case of accident, the bed may be placed where the patient feels most comfortable, only it should be where there is a good light to see and dress the wound; but in fever and smallpox let it be between the door and the fireplace. The reason for this is that as the fire cannot burn without air there must be a draught to feed it, and as this becomes heated and rushes up the chimney, it is replaced by a fresh supply drawn in through the door and window. In this way the chimney acts as a ventilating shaft, carrying away the impurities of the room, and so helps to prevent the disease spreading. It is clear, therefore, that if a person stands between the bed and the fireplace he must get the air after it has been contaminated by passing over the patient; whereas, on the other side—that is, between the bed and the door—he breathes the air pure. If from the form of the room the bed cannot be placed in this position, let there always be sufficient space left between the window and the bed to stand in.

If the room has not been used for some time, do not put the patient into it until you have lit the fire and seen if the chimney draws well. A smoky chimney may often be cured by holding a lighted newspaper a little way up the flue. This warms the air and causes it to ascend.

As to the bed itself: The best is a hair mattress, but unless you are obliged, do not use one made of feathers.

It is a disadvantage to have the bed too wide. If the patient be lying in the middle and needs help, the nurse is obliged to lift either kneeling on the bed or at arm's length, a position which takes away all her strength and causes a very painful strain on the muscles. If you are obliged to use a wide bed, a good plan is to make a division down the middle with a board a few inches high covered with the upper bedclothes. This not only prevents the invalid slipping away from you, but answers the purpose in some degree of two beds.

When you want to change the bedclothes and the patient cannot get up, proceed in this way: Roll up the clothes to be changed tightly to the middle, lengthwise, not across the bed; put on the clean things with half the width rolled up close to the other roll, lift the patient on to the newly made part, slip off the clothes he has just been lifted from, and unroll the clean ones.

If you have time before you put the patient to bed scour the floor right well, and wash it with hot water, with a few cents' worth of chloride of lime mixed with it, or if you cannot get this, use a good-sized piece of quicklime and rub well into the cracks and corners. Do not be anxious to remove the whole of the lime. Leave a little sticking in the crevices and pores of the wood; it will prevent insects, give a clean, sweet smell to the place, and help to keep away infection. Now dry it thoroughly, and the room is ready.

Nurses and Nursing.—It is a great error to suppose that only women can nurse. There are men who have been quite as gentle in their touch, quite as thoughtful about little wants, and far more considerate than almost any woman. A man's strength is a great advantage. It is a dreadful feeling for a patient not to have perfect confidence in the power of the person assisting; the dread of being let fall may give a fright which it will take days to recover from. Now, there are five qualifications which are required in a nurse—sobriety, cleanliness, firmness, gentleness and patience.

Sobriety.—All on this point necessary to say is, if unfortunately you cannot resist temptation, do not come near the sick-room.

Cleanliness.—Be always very clean, and keep the room sweet. A very little thing will spoil the appetite of a person already sick. Never let anything offensive, any dressings from a wound or burn, remain in the room. Let every vessel be emptied as soon as it is done with, well washed out, and let in the open air. Change the air frequently by opening the window; remember, bad air will poison a person as surely as bad food. The poison of fever is dangerous or not according as you weaken it with fresh air—just as you make spirit weaker by adding water. Do not leave food in a room if the patient cannot eat it. Do not let the drinking water stand long without being changed, as it absorbs whatever gases there are in the room; so that when the patient drinks it you are actually putting back into his stomach the poison which had been thrown out through the skin.

Firmness.—Remember firmness is no rudeness. You cannot expect a suffering patient to know as well what is best for him as those whose brains are clear. Therefore, if a certain thing is best to be done, do it; do it kindly, but do it.

Gentleness.—Whatever you have to do for the patient, be gentle. In cases of rheumatism or broken limbs you must change the clothes, however painful the process; do it gently, and cause no needless suffering. With care all jerks and knocks may be avoided.

Patience.—Never forget the difference between yourself and the person under your care. Did you never yourself feel irritable and restless even when you were well? Have there not been some days when you had been so easily put out, so cross that you have been almost ashamed of yourself? How, then, must it be with the person taken suddenly from an active life and compelled to lie still in one position, or with one whose whole body is racked with pain?

Accidents—General Rules.—1. The first thing to be done in all cases is to send for a physician. While the messenger is gone, endeavor to make the patient as comfortable as possible, and save him from all exertion, remembering that he needs all his strength. 2. If there be any severe bleeding, stanch the blood by means of compresses applied to the veins or arteries, as the case may be. 3. If the patient be insensible, place him on the ground or floor, lying rather over to or directly on one side, and with the head slightly raised. Remove necktie, collar, etc., and unbutton or split open any clothing pressing tightly upon the neck, chest or abdomen. 4. As a restorative, sprinkle the face with cold water, and then wipe it dry. Some cold water may be given to drink, if the power of swallowing be present, but do not pour stimulants down the throat, unless there be clear evidence that they are needed. 5. Do not move the patient, unless to get him to a place of shelter, and when he has reached it, make him lie down and seek quiet. 6. Allow no useless talking, either to the patient or in his presence. 7. Cause the bystanders to move back and leave a clear space of at least ten feet in every direction around the patient.

Stimulants should be avoided, except in cases urgently demanding their administration, but they are agents of much value in the treatment of that condition of collapse and faintness which very commonly occurs after some physical injuries. The symptoms may be briefly sketched; the face is pale and bedewed with cold or clammy perspiration; the surface of the body generally cold; the pulse flickering, perhaps hardly perceptible; the patient complains of the feeling of faintness, and may have nausea, or even natural sickness; the breathing is sighing and irregular, and for a time there may be actual insensibility. Now under such conditions there can be no question as to the propriety of inducing reaction by the administration of stimulants. Coffee given hot and strong and in small quantities is a safe and useful remedy.

Spirituous liquors are more potent in their effects, and the good effect is produced more speedly. Brandy is the best spirit, given in more or less diluted form; failing this, rum or wine may be given. If the spirits can be obtained only from some low grog shop, then whiskey is to be preferred to brandy or wine, as being less liable to adulteration. In administering these articles the best practical rule is to give a small quantity at first and watch the effect; if the surface becomes warmer, the breathing deeper and more regular, and the pulse at the wrist more perceptible, then there can be no question as to the advantage of giving even a little more; but if these signs of improvement are wanting—if there be increase of insensibility, and deepening of color about the face, with access of heat of skin—withhold alcohol entirely; it will but add to the mischief.

Rules to be followed by the Bystanders in Case of Injury by Machinery, etc., Where Surgical Attendance cannot be Obtained.—If the patient is not bleeding, do not bind the limb tight, but cover the bruised part lightly with rags. If bleeding results, do not try to stop it by binding up the wound, but find the artery by its beating and place a firm and smooth wad made of cloth or rags rolled up, or any round, smooth article of proper size, wrapped up and place over the artery, tie a handkerchief around the limb and tighten up; put a stick through under the handkerchief, giving it just enough of twist to stop the bleeding. Then enter one end of the stick under the handkerchief to secure the bind. When the leg is bleeding below the knee, apply the pad over the artery at the back of the thigh and secure in front.

The artery in the thigh runs along the inner side of the muscle in front near the bone. A little above the knee it passes to the back of the bone. In injuries at or above the knee, apply the compress high up on the inner side of the thigh, with the on the outer side of the thigh.

The artery in the arm runs down the inner side of a large muscle in front, quite close to the bone; low down it gets further towards the bend of the elbow. It is most easily found and compressed a little above the middle.

Examine the limb from time to time, and relax the compression if it becomes very cold or purple, but tighten the handkerchief again in case of bleeding.

To transport an injured person, make a soft bed for the injured part, of straw, folded coverlets, etc., laid on a board, with side pieces of board nailed on, when this can be done. If possible let the patient be laid on a door, shutter, settee, or other firm support comfortably covered, and carry him steadily, taking care if there are two or more carriers not to keep step.

Apoplexy.—A sudden suspension of the mental and physical powers. Remove the patient to a cool, well-ventilated room; place him in a reclining or sitting posture, with the head and shoulders slightly raised. Loosen all the tight parts of the sufferer's dress, especially anything passing around the neck. Pour cold water over the head, and keep it cool by means of powdered ice in a bladder or oil-skin bag. Apply mustard plasters to the soles of the feet and the calves of the legs. If the patient be of a full habit, a dozen leeches may be applied behind the ears and on the temples. If food has been taken recently, an emetic of mustard and water may be given, and in order to promote the action of the bowels a drop of croton oil should be placed on the tongue and repeated every two or three hours, till the end is accomplished. In persons of spare habit a small quantity of stimulant, as wine or brandy, or a teaspoonful of sal-volatile in water, may be given every twenty minutes or half hour. Bleeding should only be resorted to in the last extremity, where there is great danger, and the arrival of the medical man is delayed. Persons of an apoplectic temperament should live moderately, eat plain and unstimulating food and avoid wine, spirits, beer, etc. Exercise and fresh air are also of the highest importance.

Bruises.—First cleanse them; then, until pain is relieved, apply cloths wet with cold water, to which laudanum may be added. After the pain has subsided, warm water dressings will hasten the removal of the discoloration, swelling and soreness.

Burns and Scalds.—Dust the parts with bicarbonate of soda, or wet with water in which as much of the soda has been placed as can be dissolved. When the burns are so severe that the skin is broken and blisters are raised, open the blisters at one side and swath the parts with soft linen anointed with simple cerate or saturated with sweet oil, castor oil or equal parts of linseed oil and lime water. Burns from acids should be well washed with vinegar and water.

Choking.—If possible remove the offending substance at once with the fingers, or with blunt scissors used as forceps, or a loop of small wire bent like a hairpin. It may be possible to dislodge it by blowing strongly in the ear, or by causing the patient to vomit by tickling the throat. In a child these efforts may be aided by holding it up by the legs.

Cholera Morbus.—Give thirty drops of laudanum or two or three teaspoonfuls of paregoric to an adult, or proportionate doses for children. Also apply over the stomach a mustard plaster or cloths wrung out of hot water and turpentine, and frequently changed.

Colic—May be treated as above, with the addition of an emetic or purgative, or both if due to undigested food.

Convulsions in Children.—When these are brought on by indigestion, place the child in a warm bath immediately, give warm water, or a lobelia emetic, rub the skin briskly, etc., to get up an action. In brain disease the warm water is equally useful. In fact, unless the fit is constitutional, the warm bath will relieve the patient by drawing the blood to the surface.

Cramps.—A cold application to the bare feet, such as iron, water, rock, earth or ice, when it can be had, is an excellent remedy for cramp. If the patient be seized in the upper part of the body, apply the remedy to the hands.

Croup attacks children at night and is distinguished by a peculiar resonant, barking sound. Hoarseness is one of the earliest symptoms. Apply hot water to the throat for fifteen or twenty minutes with a sponge or soft cloth, and give powdered alum mixed in syrup, in half-teaspoonful doses, repeated every twenty minutes, until vomiting takes place. Keep the child warm, so that sweating may be induced, and strive to allay its excitement or fear.

Diarrhoea.—In sudden attacks of diarrhoea a large cup of strong, hot tea, with sugar and milk, will frequently bring the system to a healthy state.

Drowning—Instructions for Those Swimming to Their Relief.—When you approach a drowning person in the water, assure him with a loud and firm voice that he is safe.

Before jumping in, divest yourself, as far and as quickly as possible, of all clothes—tear them off if necessary; but, if there is no time, loose, at all events the foot of your drawers if they are tied, as if you do not do so they will fill with water and drag you.

On swimming to any person in the sea, if they are struggling, do not seize them then, but keep off for a few seconds till they get quiet, for it is sheer madness to take hold of them when they are struggling in the water; if you do, you run a great risk.

Then get close to them and take fast hold of the hair of the head, turn them as quickly as possible on their back, give them a sudden pull, and this will cause them to float; then throw yourself on your back also and swim for the shore, both hands having hold of their hair, you on your back and they also on theirs, and of course their back to your stomach. In this way you will get sooner and safer ashore than by any other means, and you can easily thus swim with two or three persons; the writer has even, as an experiment, done it with four, and gone with them forty or fifty yards in the sea. One great advantage of this method is that it enables you to keep your head up, and also to hold the person's head up you are trying to save. It is of primary importance that you take fast hold of the hair and throw both the person and yourself on your backs. After many experiments it is usually found preferable to all other methods. You can in this manner float nearly as long as you please, or until a boat or other help can be obtained.

It is believed there is no such thing as a death-grasp; at least it is very unusual to witness it. As soon as drowning persons begin to get feeble and to lose recollection, they gradually slacken their hold until they quit it altogether. No apprehension need therefore be felt on that head when attempting to rescue a drowning person.

After a person has sunk to the bottom, if the water be smooth, the exact position where the body lies may be known by the air bubbles which will occasionally rise to the surface, allowance being of course made for the motion of the water if in a tide-way or stream, which will carry the bubbles out of the perpendicular course in rising to the surface. A body may be often regained from the bottom before too late for recovery, by diving for it in the direction indicated by these bubbles.

On rescuing a person by diving to the bottom, the hair of the head should be seized by one hand only and the other used in conjunction with the feet in raising yourself and drowning person to the surface.

If in the sea, it may sometimes be a great error to try to get to land. If there be a strong "outsetting" tide and you are swimming, either by yourself or having hold of a person who cannot swim, then get on your back and float till help comes.

These instructions apply alike to all circumstances, whether the roughest sea or smooth water.

Treatment of the Apparently Drowned.—Send immediately for a physician. Arouse the patient. Unless in danger of freezing, do not move the patient but instantly expose the face to a current of fresh air, wipe dry the mouth and nostrils, rip the clothing so as to expose the chest and waist, and give two or three quick smarting slaps on the stomach and chest with the open hand. If the patient does not revive, proceed thus:

To Draw Off Water, etc., from the Stomach and Chest.—If the jaws are clinched, separate them, and keep the mouth open by placing between the teeth a cork, or small bit of wood; turn the patient on the face, a large bundle of tightly rolled clothing being placed beneath the stomach, and press heavily over it for half a minute, or so long as fluids flow freely from the mouth.

To Produce Breathing.—Clear the mouth and throat of mucus by introducing into the throat the corner of a handkerchief wrapped closely around the forefinger; turn the patient on the back, the roll of clothing being so placed as to raise the pit of the stomach above the level of any other portion of the body. If there be another person present, let him, with a piece of dry cloth, hold the tip of the tongue out of one corner of the mouth (this prevents the tongue from pulling back and obstructing the windpipe), and with the other hand grasp both wrists, and keep the arms forcibly stretched back above the head, thereby increasing the prominence of the ribs, which tends to enlarge the chest. The two last named positions are not, however, essential to success. Kneel beside or astride the patient's hips, and with the balls of the thumbs resting on either side of the pit of the stomach, let the fingers fall into the grooves between the short ribs, so as to afford the best grasp of the waist. Now, using your knees as a pivot, throw all your weight forward on your hands, and at the same time squeeze the waist between them, as if you wished to force everything in the chest upward out of the mouth; deepen the pressure while you can count slowly one, two, three; then suddenly let go with a final push, which springs you back on your first kneeling position. Remain erect on your knees while you can count one, two, three; then repeat the same motions as before, at a rate gradually increased from four or five to fifteen times in a minute, and continue thus this bellows movement, with the same regularity that is observable in the natural motions of breathing which you are imitating. If natural breathing be not restored after a trial of the bellows movement for three or four minutes, then, without interrupting the artificial respiration, turn the patient a second time on the stomach, as directed previously, rolling the body in the opposite direction from that in which it was first turned, for the purpose of freeing the air passages from any remaining water. Continue the artificial respiration from one to four hours, or until the patient breathes; and for a while after the appearance of returning life, carefully aid the first short gasps until deepened into full breaths. Continue the drying and rubbing, which should have been unceasingly practiced from the beginning, taking care not to interfere with the means employed to produce breathing. Thus, the limbs of the patient should be rubbed, always in an upward direction toward the body, with firm grasping pressure and energy, using the bare hands, dry flannels or handkerchiefs, and continuing the friction under the blankets or over the dry clothing. The warmth of the body can also be promoted by the application of hot flannels to the stomach and armpits, bottles or bladders of hot water, heated bricks, stones, etc., to the limbs and soles of the feet.

After Treatment.—Externally: As soon as breathing is established, let the patient be stripped of all wet clothing, wrapped in blankets only, put to bed comfortably warm, but with a free circulation of fresh air, and left to perfect rest. Internally: Give a little brandy and hot water, or other stimulant at hand, every ten or fifteen minutes during the first hour, and as often thereafter as may seem expedient. Later manifestations: After reaction is fully established there is great danger of congestion of the lungs, and if perfect rest is not maintained for at least forty-eight hours, it sometimes occurs that the patient is seized with great difficulty of breathing, and death is liable to follow unless immediate relief is afforded. In such cases apply a large mustard plaster over the breast. If the patient gasps for breath before the mustard plaster takes effect, assist the breathing by carefully repeating the artificial respiration.

Hints to Bathers.—Avoid bathing within two hours after a meal. Avoid bathing when exhausted by fatigue or any other cause. Avoid bathing when the body is cooling after perspiration, but bathe when the body is warm, provided no time is lost in getting into the water. Avoid chilling the body by sitting or standing naked on the banks or in boats after having been in the water. Avoid remaining too long in the water—leave the water immediately there is the slightest feeling of chilliness. Avoid bathing altogether in the open air, if after having been a short time in the water there is a sense of chilliness, with numbness of the hands and feet. The vigorous and strong may bathe early in the morning on an empty stomach; the young and those who are weak had better bathe three hours after a meal. The best time for such is from two to three hours after breakfast.

All that is necessary to keep a person from drowning in deep water is to keep the water out of the lungs. . Suppose yourself a bottle—your nose is the mouth of the bottle, and must be kept out of the water; if it goes under, do not breathe at all till it comes out; keep legs, arms, all under but your nose; do that, and you cannot sink in any depth of water. All you need to do to secure this is to clasp your hands behind your back, point your nose upward toward the heavens, and keep perfectly still. Your nose will never go under water unless you raise your chin, hand, knee, or foot above it.

Earache.—If a living insect is in the ear, turn the head to the opposite side and fill the ear with tepid water, oil or glycerine, and it will soon come to the surface. A bright light thrown into the ear will, also, often succeed in bringing it out. Any body that will not swell when moistened with water may probably be removed by syringing the ear thoroughly, with the face held downward. None but the very gentlest probing of the ear should be attempted by any one but a physician. Earaches may often be relieved by using hot drinks, and a hot hop poultice over the affected ear.

Epileptic Fits.—These are known by pallor of face at first, a peculiar cry, loss of consciousness, then flushing of face and violent convulsions, with foaming at the mouth, rolling of the eyes and biting of the lips and tongue. In a fit of this kind place the patient on the back, with little or no elevation of the head, control his movements only so far as prevent injury, place a folded towel between the teeth, if possible, to prevent the biting of the tongue. When the convulsion is over let the patient rest in some quiet place, having previously taken a slight stimulant if very much exhausted by the violence or length of the fit.

Eye.—Dirt in the eye may be washed out by squeezing from a sponge a small stream of tepid water. To wash lime from the eye use the tepid water moderately acidulated with vinegar or lemon juice. Cinders and other small particles may be removed generally by touching them with a soft silk or linen handkerchief twisted to a point, or by using a loop of human hair. Metallic particles can be removed often best by the use of a magnet.

To expose the eye more fully, the upper lid may be easily averted by lifting it by the lashes and pressing from above by a slender pencil or stick.

Fainting.—When persons have fainted lay them down with the head as low as possible, loosen the clothing, keep back any crowding that would interfere with plenty of fresh air; sprinkle water over the face, apply hartshorn to the nose, and if too long in recovering consciousness place heated cloths or plates over the stomach.

To Save a Person on Fire.—Seize a blanket from a bed, or a cloak, or a carpet, or any woolen material. Hold the corners as far apart as you can stretch them out higher than your head, and rush boldly on the person, throwing the fabric around the upper part of the body. This instantly smothers the fire, and saves the face. The next instant throw the unfortunate person on the floor. This is an additional safety to the face and breast, and any remnant of flame can be put out more leisurely. The next instant immerse the burnt part in cold water, and all pain will cease with the rapidity of magic. Next get some common flour, remove from the water, and cover the burned parts with an inch thickness of flour; if possible put the patient in bed, and do all that you can to soothe until the physician arrives. Let the flour remain until it falls off itself, when a new skin will be found, and unless the burns are deep, no other application will be needed.

Fish-Hooks.—When a fish-hook has entered any part of the body, cut off the line, file off the flattened end and pass the hook on through the flesh like you would a needle in sewing.

Fractures.—Broken bones are easily recognized by the grating of the ends on each other, by the unusual bending of the limb, and by the pain caused by motion at this point. A fracture is called compound when the end of the bone protrudes through the skin. Whenever such protrusion is seen, the part should be cleansed and at once covered with adhesive plaster or a piece of linen saturated with white of egg. All fractures should be attended to by a surgeon; consequently the dressings suggested here are only temporary, and intended to protect the parts from further injury.

In Fracture of the Arm Above the Elbow, bandage the upper arm to the side of the chest, and place the hand in a sling. In fracture of the arm below the elbow, bend the arm at the elbow at a right angle, place the thumb uppermost, and bandage it between two padded splints, reaching from elbow to ends of the fingers, one being placed on the back of the arm and the other on the front, and place the hand in a sling. In fracture of the leg below the knee, extend the leg beside the sound one, giving it the same position, place a pillow beneath from the knee down fold the sides of the pillow over the leg, and secure it in that position by bandages. In fracture of the thigh-bone, place the patient on the back in bed, relax the muscles of the leg by drawing the feet up toward the body sufficiently, bind splints to the outer and inner side of the broken thigh, then bind both legs together, and turn patient on the side with the injured limb uppermost. In fracture of the knee-cap, bind the whole limb to a splint on the back of it, being careful to place a sufficiently large pad beneath the bend of the knee. In fracture of the collar-bone, place the patient on his back on a hard bed without any pillow. In fracture of the lower jaw, close the mouth and bandage so as to keep the two rows of teeth together. In fractures of the skull, lay the patient down and apply cold, wet cloths to the head. In other fractures, place the patient in the most comfortable position possible, keep him quiet and apply cold water to prevent swelling.

For splints, pasteboard, leather, shingles or pieces of cigar-box may be used.

Frostbite.—In frostbites use gentle friction in a warm room. using enough cold water or snow to prevent too rapid reaction and consequent pain in the affected part. If very severe, call a physician, as gangrene may follow.

To Restore Those Who Have Been Frozen.—These require a mode of treatment entirely different; for by warmth they would be destroyed altogether. Nothing further is to be done than to immerse them in snow up to the head, or to place them in a bath of the coldest water that can be procured wtihout being frozen. Then life will return of itself, and as soon as any signs of it appear give the patient a little warm tea or wine, and put them to bed.

Hemorrhages.—In hemorrhage from an artery the blood is bright red, and spurts or jets out from a cut. To stop it, make compression between the wound and the heart.

In venous hemorrhage the blood is dark in color and flows in a steady stream. To stop it, make compression on the side of the wound away from the heart. Hemorrhage from the lungs is bright red and frothy, while that from the stomach is of dark color.

To make thorough compression of a blood-vessel, knot a large handkerchief in the middle, place the knot over the line of the vessel, tie the ends firmly around the limb, thrust a short stick beneath, and twist by turning the stick like you turn an auger.

Hemorrhage from the Nose may be stopped generally by snuffing up the nose salt and water, alum and water, or vinegar, or by applying ice between the shoulders, or at the back of the neck, or by putting bits of lint into the nostrils, and raising the arms over the head. Keep head raised. In hemorrhage from the lungs, place the patient in a sitting posture in bed, giving teaspoonful doses of salt and vinegar every fifteen minutes, and applying ice or cold water to the chest, unless the patient is too weak to bear it. In hemorrhage from the stomach, broken ice may be swallowed with teaspoonful doses of vinegar. In hemorrhage from the bowels, use ice water injections and ice over the abdomen.

Injuries to the Brain.—Blows or falls upon the head are liable to injure the brain in two ways. Concussion of the brain is recognized by the sickness, faintness, pallor, depression and confusion of the patient, and is best treated by placing the patient on his back in a quiet, cool place, loosening the clothing and applying heat to the body and limbs if they be clammy or cold. Compression of the brain is due to fracture of the skull, generally a portion being depressed. The symptoms and treatment about the same as apoplexy.

Ivy Poisoning or Poison Oak.—Treated by the application of cloths saturated with sugar-of-lead water, or with a solution of bicarbonate of soda in water. Hot water applications will give instant relief.

Nausea and Vomiting.—First cleanse the stomach by giving large draughts of warm water, and then give small pieces of ice, a tablespoonful of lime water, or a half teaspoonful af aromatic spirits of ammonia, or a small quantity of magnesia or baking soda, and, if necessary, place a mustard plaster over the pit of the stomach.

Nervous Attacks, or Shivering Fits, are treated by hot drinks, heat to the surface of the body, mustard or turpentine over the stomach, and a dose of Hoffman's anodyne or tincture of valerian, if at hand.

Nose.—Children are apt to shove up their noses small bodies of different sorts, which may cause serious trouble unless soon removed. Their removal may often be effected by vigorously blowing the nose or by repeated sneezing, produced by snuff, or by tickling the nose with a feather. If these fail, a hairpin or buttonhook may be carefully tried.

Poisons and Their Antidotes.—When poisonous substances have been taken into the stomach, the first move is to cause their ejection by vomiting, or neutralization by proper antidotes. Our first step, however, should always be to get rid of as much of the poison as possible by vomiting—riddance is always preferable to neutralization—but that which remains must be rendered inert by proper antidotes.

Vomiting should be produced by the simplest means when they are sufficient, such as tickling the throat with the finger or with a feather, or by drinking lukewarm water, salt and water or mustard and water, but when these means are insufficient we should at once resort to one of those emetics which is most powerful and speedy in its operation, as tartar emetic, sulphate of copper or sulphate of zinc.

When vomiting has been excited, it should be continued by copious draughts of warm water, or by tickling the throat with the finger or a feather, until the poisonous substances are rejected. In cases when vomiting cannot be produced, the stomach pump must be used by skilled hands, especially in arsenical or narcotic poisons.

When as much of the poison as possible has been gotten rid of by vomiting, the following antidotes will be found the most simple and reliable: acids are neutralized by alkalies, such as very thick soap suds of soap and milk, chalk, soda, lime water. magnesia, or saleratus. In cases of poisoning from sulphuric acid do not use soap suds or lime water; for nitric or oxalic acid use magnesia and lime, and for prussic acid use dilute ammonia and electricity.

Alkalies are neutralized by acids, the vegetable acids, vinegar, or oils in large quantities.

Opium and Other Narcotics are neutralized by strong coffee and frequent doses of aqua ammonia, following and during frequent powerful emetics, and for the spasms of strychnia use chloroform, or ether and electricity. Motion and heat must be maintained in poisonings of this character.

Arsenic is probably the most difficult poison to antidote successfully of any we have to contend with; hydrated peroxide of iron, in tablespoonful doses every ten minutes until relief is obtained is relied upon by the profession oftener than any other treatment. This preparation, as well as any others named under poisons, can be procured at any druggist's.

When poisoned by **bismuth, copper,** and their compounds, **mercury, tin, zinc** and their salts, and **creosote,** use albumen in some form, as the white of eggs, sweet milk, strong coffee, and mucilaginous drinks.

For **lead** and its salt, use epsom salts, glauber salts, dilute sulphuric acid, or even lemonade, in mild cases.

For **iodine** use starch, wheat flour or arrowroot beaten up in warm water.

For **gases** use dilute ammonia, electricity and friction.

In poisoning from animals but little or no benefit is derived from vomiting, but we should at once resort to antidotes, and often to the actual cautery.

For the bite of a mad dog the actual cautery should instantly be applied to the wound, and large doses of zinc, or muriate of iron, given for several days.

For serpents' stings apply the actual cautery immediately and give sufficient whisky or brandy to produce intoxication.

For insect poison apply iodine, or hartshorn and oil, to the part, and give stimulants for a day or two.

Sore Throat.—Gargle with alum water or alum in sage tea, and drink often and freely of flaxseed tea.

Flaxseed tea should be made by pouring a pint of boiling water on one or two tablespoonfuls of whole flaxseed and stirring it up for a few minutes. The flaxseed should not be boiled. as that would bring out the oil, which is too heavy for the stomach. It is only the mucilage from the outside of the seeds that is useful. Chlorate of potash, an ounce, in a pint of hot water. makes a very good gargle for a simple or ulcerated sore throat. It is nearly tasteless, and being not at all offensive to take, is well adapted for children. A stronger gargle is: Take of very strong sage tea, half a pint; strained honey, common salt and strong vinegar, of each two tablespoonfuls; one teaspoonful of pulverized cayenne pepper; steeping the cayenne with the sage, strain, mix and bottle for use, gargling from four to a dozen times daily, according to the severity of the case. To smoke dried mullein leaves in an ordinary but new clay pipe has been found very beneficial where there is a tickling in the throat, or hacking cough, or other irritation.

Splinters.—Wood splinters, if not too brittle, may generally be extracted by tweezers or forceps, by seizing the end and pulling steadily and carefully in the direction opposite that in which they entered. Nature will soon make them easier of extraction by the formation of matter around them. To get hold of a splinter under the nail, cut out a V-shaped portion of the nail above it, and then the end can be seized. Splinters of glass, unless readily extracted, should be left to the skill of the surgeon. When a splinter in the eye cannot be extracted, bathe in cold water and bandage loosely, so as to keep the eye as quiet as possible till the surgeon arrives.

Sprains.—Treat sprains by rest, elevation of the limb, cold moist applications at first, and afterward either cold or warm, whichever gives the greater degree of comfort. A splint or bandage is sometimes useful.

Suffocation.—Treat by quick removal to the open air, loosen the garments and apply friction and artificial respiration, if necessary. To escape injury by the heavier gases, as carbonic acid gas. the gases of mines, wells, etc., strive to keep the head above them. To escape through smoke, cover the head with some article of clothing and seek the outlet with the head as near the floor as possible.

Sunstroke.—Treat this by removing the clothing, applying ice to the head and armpits until the high temperature is lowered and consciousness returns, when it should be discontinued until a rising temperature again calls for it. A cold bath of iced water may be very beneficial.

Thirst is a fever of the palate, which may be somewhat relieved by other means than drinking fluids. The mouth is kept moist and thirst is mitigated by exciting the saliva to flow. This may be done by chewing something, as a leaf, or by keeping in the mouth a bullet or a pebble. A spoonful of fat or butter will act on the irritated membranes of the mouth and throat. Life may be prolonged without drinking by keeping the clothes and skin constantly wet, even if the water be salt. Care must be taken on giving water to persons nearly dead from thirst. Give a little at a time, and keep the whole body wet.

Toothache.—When due to a hollow tooth, cleanse the cavity with a little dry cotton on a probe or large needle, and then pack into the cavity a wad of cotton which has been dipped in creosote, oil of cloves, or ether. When there is no cavity, try bathing the face and gums with some of the various anodynes.

Water.—In all localities where the quality of the water is suspicious, condensed water should, if possible, be used for drinking and cooking purposes. When this is not feasible, the water should be carefully filtered and boiled. Two barrels, one inside the other, having a space of four or six inches clear

all round between them, filled with layers of sand, gravel and charcoal, form an excellent filter. The inside one, without a bottom, rests on three stones placed in layers of sand, charcoal and coarse gravel; the water, flowing or being poured into the space between the two barrels, and having thus to force its way through the substances into the inner barrel, becomes purified. The water should be drawn off by means of a pipe, running through the outer into the inner barrel. Animal charcoal is the best. When, after a time, it ceases to act, it should be removed and well dried. It can then be used again with advantage. It is impossible to use too much of it. The popular French plan of purifying turbid water (alumage de l'eau) simply consists in the addition of a small quantity of alum. It clears the water very rapidly, but merely converts the lime carbonate into sulphate, which remains in solution.

WATER.

A great deal of water is necessary for human existence, and when we consider that the great bulk of the body is composed of water we realize how important it is that the water should be free from impurities. A healthy person should consume by drink each day a half an ounce of water for each pound of weight—in other words, a person weighing 160 pounds should consume daily 5 pints of water, one-third of which would naturally be contained in the food and the rest taken as drink. In summer much more water is necessary than in winter to replace the large amount given off as perspiration.

It is interesting to consider the average amount of water which ought to be used by an individual daily for all purposes. The average is as follows: For cooking purposes, three-fourths of a gallon; for washing and bathing the body, five gallons; for drinking, one-third of a gallon; for cleansing purposes—house cleaning, clothes washing, etc.—six gallons; making a total average of twelve gallons of water consumed daily by each individual. This would make the amount of water suitable for a family of six persons, seventy-two gallons. In cities, however, where water closets are in use and bath tubs usual, the majority of persons require much more than twelve gallons of water daily. But when we take into consideration all manufacturing purposes, flushing of sewers, etc., and the tremendous waste, the amount of water used per capita in cities averages from 50 to 150 gallons daily.

VARIOUS KINDS OF WATER.

Rain Water.—When rain is collected in absolutely clean cisterns, off of clean roofs after passing through a clear and pure atmosphere, it is the most healthful of all drinking waters and is pleasant to the palate and quenches the thirst. While descending, rain water becomes greatly aerated and at the same time becomes laden with water salts or other chemical substances which may be held in suspension in the atmosphere. As it does not contain lime in any form it may be used agreeably by those who cannot drink hard or lime water. Its softness also renders it the best water for washing purposes. Rain water easily becomes affected by lead and for that reason the first water that passes through lead pipes after standing in them over night, should not be used for drinking purposes.

Well Waters.—When a well is over 40 feet deep its water is usually good as the vein from which it comes lies beneath some hard layer of soil, thus protecting it from surface drainage. As a rule well waters are hard—that is, they contain more or less carbonate or sulphate of lime in solution. A well that is bored by a small pipe being sunk into the ground is not liable to be contaminated, but an open well is very apt to have much extraneous matter fall into it. Water from a surface well is nearly always contaminated. As such wells are less than 40 feet deep, their water comes from the drainage of the soil, and may have in it much of organic matter in solution, which is always unhealthful.

Artesian Wells.—Artesian wells are bored to a great depth until they pass through an impervious layer of soil or rock, beneath which the water is held under great pressure, which forces the water upward through the pipe to a height above the level of the ground. As a rule artesian well water holds in solution considerable mineral salts, but no organic material. One of the most common of artesian mineral waters is known as sulpho-saline, which contains sulphur and salt and is very beneficial in the treatment of certain forms of disease.

Spring Water.—As a rule spring waters are healthful, especially if they come from a great depth, which may be known by the spring not running dry even in the hottest and driest weather. Many spring waters contain minerals in solution, taken from the soil through which the water is drained.

River water when not polluted by sewage or other sources of organic impurity, is usually healthful on account of its thorough aeration.

Distilled water is excellent for those whose systems are laden wih salts—as rheumatics; but ordinarily distilled water, unless artificially aerated, is unpleasant to the taste and is not to be preferred to good well, cistern, river or lake water.

Rules for Proper Eating.—1. Have a variety of foods each day and week, not too much variety at one meal. Sameness takes away the appetite.

2. For breakfast have cereal foods. There are so many of these that the same kind should not be eaten every day. Always have some fruit upon the breakfast table.

3. For dinner have meats and vegetables. Soup at the commencement of a hearty meal is excellent, as its heat arouses the function of the stomach. If the thin is thick, the vegetables should be of a watery character, such as cabbage, summer squash, turnips, etc. If the soup is thick, follow with the more solid vegetables.

4. It is a good plan to have a variety of vegetables at a meal, instead of any one class, the moist and the dry go well together, and two vegetables hard to digest, such as beans and cabbage, should not be served together.

5. For supper, have light food and eat it early—bread and stewed fruits are good. It has become customary in the large cities to eat the heartiest meals at night time. If habits of life make this necessary, it is better to avoid meat at night and eat it with the noonday meal, even if the other articles of food at that time are light.

6. In warm weather fruits and very little cereal should be

eaten for breakfast, and fresh young vegetables for dinner. Avoid cold drinks, as they disturb the digestion.

7. In cold weather fat meats, cereals and heavy vegetables and plenty of hot soups should be eaten.

SPECIAL DIETS.

Diet For Diabetes.—Persons who have diabetes are unable to assimilate articles of food which contain sugar or starch, and therefore all such substances should be avoided as much as possible.

Diabetic Persons Should Avoid candy, puddings, pastry, fruits, liquors, wines, white bread, cakes, rice, tapioca, macaroni, potatoes, parsnips, beets.

Diabetic Persons May Eat fresh meats, fish, poultry, game, broths, graham or gluten bread, cheese, butter, cream, greens, cabbage, turnips, spinach, kale, cucumbers, lettuce, radishes, celery, oil, eggs, nuts (except chestnuts), olives.

Diet For Gout.—A light diet is necessary, which should consist almost entirely of vegetables to the exclusion of meats, wines and liquors. Lean meats are especially undesirable.

Diet For Dyspepsia.—First of all avoid everything that is found to occasion distress after being eaten. Persons differ in their ability to eat certain articles—some having especial idiosyncrasies. As a rule in all cases puddings, cakes and pastry should be avoided, also tea, coffee, wines, liquors, white bread, hot biscuits and pork. Whole wheat bread, graham bread and Boston brown bread will usually be found acceptable, and the drier the bread the better. All food should be eaten very slowly, not only to reduce it to fineness, but to mix it well with the saliva. Rare and tender beefsteak is good in most cases, mutton is excellent. Soups are nourishing, but weaken the digestive juices and fluids taken during meals cause the same trouble. Fried meats and fish, doughnuts and pies and fried vegetables are improper.

To Reduce Flesh.—Chew all food well and drink as little fluid as possible at any time. If thirsty moisten the mouth with water. Slowly cut down the amount of food eaten until it is one-half the usual quantity. Eat plenty of lean meats and avoid fats, oils, potatoes and all sweet and starchy foods, such as white bread, rice, sago, parsnips, puddings, etc. Use no cream in the tea or coffee and place a little vinegar in the water. Never sleep to excess, work hard and perspire freely.

How to Get Fat.—Keep warm and lazy, do not worry, and sleep as much as possible. Eat slowly and drink an abundance of milk or water. Among fattening articles of diet may be mentioned fat meat, cream, butter, bread, potatoes, parsnips, beets, sugar, candies, sweetmeats, cocoa, chocolate, puddings and custards. Keep a cheerful mind and laugh as much as possible. Do no violent exercise and ride instead of walking every time possible. A good method of aiding the accumulation of fat is to eat a bowl of bread and hot milk each night just before retiring. An easy walk or slight labor in the fresh air, especially in the sunlight, is better than absolute indolence, as in that way sufficient exercise may be taken to create an appetite for eating. Strong mental emotions and late hours at entertainments should be avoided.

HYDROPATHY OR WATER CURE.

Hydropathy or Water Cure.—From the most ancient times water has been used as a cure for disease of various kinds, and at the present day all physicians employ it in their practice. The system of using water according to certain rules for the treatment of all diseases, is called hydropathy. A few of its most important uses will be mentioned.

Cold Pack For the Entire Body.—Place upon a bed, first an ordinary comforter, then a blanket and upon this a sheet wrung out of cold water. Divest the patient of all clothing and let him lie on the back on top of the wet sheet, then wrap it completely about him and snugly enfold him in the blanket and comforter and let him remain from ten to twenty minutes, when the entire body will feel aglow with increased circulation at the surface. Persons who have weakness of the heart or a very low vitality should not be treated in his manner, as the shock of the cold water drives the blood too suddenly from the surface inward upon the heart.

Wet Compress.—For the treatment of local inflammation the wet compress is often very useful. In the case of sore throat saturate with water a folded towel and place around the neck and outside of this place a dry folded towel. For dyspepsia caused by sluggishness of the stomach the patient should lie upon the back and a folded towel wet in cold water placed directly over the stomach and a dry towel wrapped about the body. Ordinary backache may be relieved in the same manner.

Sitz Bath.—For pelvic inflammation, constipation and disorders of the lower part of the trunk of the body, cause the patient to sit in a tub of water (usually as hot as can be borne) with the legs and upper part of the body out of the water, well wrapped in blankets. Remain in the water from a quarter to half an hour.

Wet Sheet Rubbing.—Where there is sluggishness of the circulation or inactivity of the skin this method will be found beneficial. A thick sheet or thin cotton blanket is saturated with cold water and wrung out loosely and then placed about the patient's naked body. An assistant then rubs vigorously the entire body through the blanket or sheet, until the entire body is thoroughly warm. Ten minutes or even less will usually suffice.

Douches.—For this purpose a fountain syringe is necessary. Fill it with water, hot or cold as may be desired, and elevate a slight distance above the part to be irrigated. When the stream of water is directed into the nostrils care should be taken not to elevate the water bag too high, as too great a power will force the water into the eustachian tube leading from the upper part of the throat to the ear and cause deafness. Sprains are often treated by holding the arm or leg under a water spout a few inches from it, and allowing the water to run freely over the affected part.

Treatment of Bruises.—Immediately after an injury, the black and blue appearance which so often follows may be prevented by immediately applying compresses of cold water for short periods, not allowing them to become warm. If the black and blue appearance is already manifested, hot compresses should be applied. The cold contracts the skin and prevents blood from distending minute blood vessels; the heat relaxes or exands the little capillaries and gives the stagnated blood a chance to move.

Foot Baths.—When the head or upper part of the body is crowded with blood, as in severe headache or inflammation of the lungs, or ordinary sore throat, the excessive blood must have come from the lower extremities, leaving the feet cold. In all such cases a hot foot bath is beneficial. In severe cases red pepper or mustard should be placed in the water.

Cold Baths.—Many people receive great good from the daily use of cold baths, usually taken in the morning. Only the most robust can stand the cold plunge bath; while nearly all can enjoy the sponging of the body with cold water, exposing only a small portion at a time and drying and rubbing that well before sponging another portion. A person with a weak heart should not take cold baths, as the cold will drive the blood too suddenly upon the heart. For the same reason persons with feeble circulation should not resort to cold baths, as their vitality is too low for a reaction to be quickly established. For other persons a cold sponge bath is tonic and pleasant, and when taken daily will prevent contracting colds.

Warm or Tepid Baths.—When the skin is dry and contracted and the tissues tense, a warm bath will be found relaxing. It soothes the nervous system and if often employed in restless persons to induce sleep, it softens the skin and induces perspiration. As such bathing puts the body in a condition to readily "catch cold," it should be performed at night, just before retiring, in a bed thoroughly warmed.

A hot bath is weakening and should not be used unless followed by sprinkling or showers of cold water over the body afterward.

Shower Baths.—An agreeable method of bathing is with the shower bath. This can be used with water of whatever temperature is most agreeable and should not be continued over five minutes and then should be followed by vigorous rubbing of the body with a coarse, rough towel. A cold shower bath, continued for any length of time is too severe for any but the most robust, although a short shower of cold water is usually refreshing and invigorating.

SWEDISH MOVEMENTS.

Swedish Movements.—When properly performed, the class of exercise known as Swedish Movement is capable of producing remarkable results in the restoration and maintenance of health. All these movements are easily performed and require no apparatus of any kind; so that everyone can take advantage of the benefits to be derived from them.

The best place for such exercise is undoubtedly in the open air or beneath a canopy; but when such a place is not desired, a well-ventilated room should be used. Exercising in a close or overheated room is often more harmful than good.

1. Let the arms drop, and place the palms of the hands on the sides of the thighs; then slowly raise the arms until they are as high above the head as possible, with the palms of the hands facing one another. Hold the arms back as far as possible and the chest forward, breathe slowly through the nostrils, and slowly let the arms drop to the first position. Repeat about a dozen times. This form of exercise is well adapted to persons who have difficulty in breathing easily, who have weak and undeveloped chest muscles and insufficient expansion.

2. Extend the arm directly forward with the hand stretched wide open, then slowly describe a circle, with the shoulder joint as the center, swing the arm above the head, keeping the back and neck straight. Perform the movement with one arm at a time. This is of benefit to those suffering from a crowded feeling in the chest and fulness in the head and general sluggish circulation.

3. Place the hands on the hip with the fingers widely separated and the elbows at an angle. Throw the shoulders and body backward and then while the hands still rest on the hips, move the elbows back as far as possible and back again to the first position. Repeat several times. By this method the chest may be greatly enlarged.

4. Draw the shoulders well backward, clench the hands and place them in front of the shoulders, then suddenly throw the arms full length upward and then back to the first position. Repeat fifteen to twenty times, breathing slowly. This exercise is useful in overcoming round shoulders.

5. Stand with the arms close to the body, the elbows bent so the tips of the fingers touch the shoulders, then quickly throw the hands as high above the head as possible and suddenly return to the original position and repeat a dozen times. Next, stretch the arms forward and then backward and then sideways as far as possible, each time returning to the original position. In this manner the entire lungs are expanded and enlarged, the muscles of the arms strengthened and the entire body invigorated. Such movements are useful in nervous debility and indigestion.

6. Stand erect with the arms stretched at right angles with the body and then rotate the hands, twisting them around as far as possible without lowering the arms. The muscles of the arm and shoulder are greatly strengthened in this way.

7. To strengthen the wrist and increase the dexterity of the fingers, touch the front of the wrist with the fingers on the same hand, then open the hand and stretch the fingers backward as far as possible, bend the hand sideways each way as much as possible; clench the hand suddenly and vigorously and quickly open and separate the fingers and bend the hand backward.

8. For the cure of cold feet which often annoy persons compelled to lead an indoor life, there is no better exercise than that of alternately raising the toes and then the heels of first one foot and then the other. One method of performing this exercise is to stand firmly on one foot while the other is raised and the exercise performed by it. The hands should be placed upon the hips. This exercise may be modified by causing the foot, when raised, to form in its movements a half-circle by working it first to one side and then the other. These foot exercises are also valuable for persons who suffer from a crowding of blood upon the upper organs, such as the stomach, lungs and brain. They are useful in biliousness accompanied by sluggish circulation and cold feet.

9. Bend the leg till the thigh forms a right angle to the body and the leg a right angle to the thigh, then throw the entire leg out straight, rebend it and then place the foot on the ground with the heel close to the other heel, repeat several times, alternately straightening the leg forward and sideways as far as possible.

10. Stand erect upon one foot and with the other describe a circle by throwing the foot outward, sideways and backward as far as possible, keeping the leg stiff and making the circle as complete as possible, with free movement at the hip joint only. This exercise well performed aids in securing a graceful use of the legs.

11. Stand erect with the hands on the hips, bend the knee and lift the leg as high as possible, trying to bring the knee against the abdomen. Alternate the exercise with first one leg and the other, commencing at a slow measure and gradually increasing the rate of movement.

12. Bend the knees and lower the body until the calves and backs of the thighs meet, holding the position by extending the arms forward, slowly raise the body, with the heels coming together and the hands resting against the thighs.

13. Separate and stiffen the legs and plant the feet firmly, and then as nearly as possible describe a circle with the head by keeping the neck stiff and swaying the body from the hips. This exercise greatly benefits the circulation and is useful in constipation and hemorrhoids and female diseases.

14. Place the body on the back upon a low table, so that the edge of the table comes under the knees, let the feet hang down and just touch the floor; have some one press upon the knees and then raise the body to a sitting position, keeping the back straight. Then lie down again slowly and repeat the movement several times. This exercise is good for sluggish conditions of the stomach and intestines.

In all practice according to the above rules, the motions should be performed slowly at first and gradually increased. At no time should the exercise be allowed to become tiresome. A healthful glow and a refreshed feeling should be the result.

EMETICS.

Emetics.—Emetics have been used from ancient times in medical practice, and are of great service in all cases, whether acute or chronic, where the stomach, bowels, gall-passage, lungs or bronchial tubes are obstructed or clogged with degenerated materials. In every form of fever, in nearly every form of dyspepsia, in dysentery, colds, asthma, croup, etc., they are applicable at proper times and in proper forms. It is a misapplication of emetics to give them when the intestinal canal and thoraic viscera are free, and the difficulty is seated in the skin, kidneys, head, extremities, bladder, uterus or other remote parts. As nearly all cases of these latter classes are complicated with intestinal or hepatic obstruction, it generally occurs that emetics are advisable; but the above-mentioned discrimination should be observed.

Different states of the system require different kinds of aid to assist it in the act of emesis—the universal tension of inflammatory fever calling for almost pure relaxation, while the prostration of chronic intermittents requires much stimulation. Emetics should not, therefore, be given in the same manner at all times. The following modes may be considered the most convenient:

1. **The Relaxing Emetic.**—Make an infusion of ginger, white root and geranium, equal parts, a full teaspoonful to a quart of boiling water. Add half a teaspoonful of lobelia, and give half a cup of this, warm and sweetened, every fifteen minutes, or less for a child. This will exert a slow and searching influence, and is to be used in all such decidedly acute cases as bronchitis, pleurisy, lung fever, inflammatory fever, croup and dysentery, when the system demands full relaxation at the same time that emesis is required to unload the abdominal and thoracic viscera.

2. **The Ordinary Emetic.**—Prepare an infusion of composition, weak; or use asarum, ginger and hemlock in equal quantities, and make into a weak tea. Give a cupful every fifteen minutes, until three of them have been given. Then steep a heaped teaspoonful of lobelia herb in a cup of hot water, strain and give at one dose. Following with the tea in half-cupful doses every ten minutes, till vomiting ensues. If the lobelia is ejected in a few minutes, repeat the portion. This method is best in typhus, dyspepsia, diarrhea, and all sub acute cases in which the system requires a gentle stimulating influence.

3. **The Stimulating Emetic.**—Use a pretty strong tea of composition; or employ bayberry, ginger and asarum in equal parts and add one-fourth of a part of capsicum. Administer as in ordinary emetic. This mode of procedure arouses the whole system to full action and should be employed in very low forms of

typhus, typhoid, dysentery, ague, chronic dyspepsia, cholera, pleuritic effusion, scarlatina, maligna, etc. In some very obstinate cases of this class, a tea of bayberry and cayenne, in equal parts, is necessary to stir up the frame; and a little cayenne may be added to the lobelia. A few grains of soda dissolved in water, expedite the action of an emetic when the stomach is sour. Painful vomiting may be relieved by drinking plenty of the teas. In mild acute cases, when the conveniences for giving an emetic in the usual form are not procurable, the patient may be put upon the use of pills made of lobelia seed and ginger mixed freely into extract of boneset or dandelion. One of these given every three-quarters of an hour, with intermediate drinks of spearmint, balm, or other agreeable aromatic, will generally procure good emesis and gentle relaxation in a few hours.

VAPOR BATHS.

Vapor Baths.—Vapor baths are of service in obstructions of perspiration, especially in chronic torpidity of the skin; in typhus, yellow fever, scarlatina maligna, bronchitis, pneumonia, dysentery and all cases where there are strong recessions of blood internally, chronic failure of deeply seated organs and the pressure of any kind of poisons.

Vapor baths should not be given till after the alimentary canal has been well cleaned by emetics, or by agents that act upon the lower bowels, as injections. To give them while the intestines are clogged with morbidities is to invite these materials outward through the lacteals and thus depress the system. The vapor should be applied over the head, when not positively disagreeable; and such articles as ginger, mint or composition, should be used in a weak tea, to aid the bath. A dense vapor containing much moisture and little heat, will favor absorption rather than exhalation at the surface, and may not secure perspiration at all. Too great a degree of heat stimulates the surface highly, and causes its contraction. While avoiding these extremes, remember to employ only the lowest available temperature when it is determined to give this bath at all in acute cases with a hot skin, and to use all the warmth that is comfortable in chronic cases with a cold skin.

A bath is to be continued till the whole surface is in a perspiration. Applied for too long a time, it may cause too great an abstraction of moisture, whence it is not good in cases where the transpiration is easily made profuse. It is a most powerful equalizer of circulation and nervous action. It has been employed in the practice of medicine for two thousand years and always with the most marked benefit, when not misapplied.

Injections.—Injections are to be either demulcent, relaxing, astringent or stimulating, according to the condition of the system. Slippery elm and starch are the best demulcents, lobelia in elm the most serviceable relaxant, and a little ginger added to these makes as much stimulation as is required in ordinary cases. Injections are mostly employed to unload the bowels when they should be large and warm. When used to influence remote parts, they should seldom exceed two or three fluid ounces, else they will not be retained. Stimulants are seldom retained, even in chronic cases; but in great depression, whether acute or chronic, such stimulant as the third preparation of lobelia, is of remarkable service. The whole system can be profoundly influenced by means of injections.

HEREDITY.

Heredity.—A great many diseases or tendencies toward disease may be transmitted from parent to child or from one generation to another through many successive generations, possibly skipping one generation and reappearing in a later one. Consumption has long been recognized as the most common of hereditary disease, because it is the most fatal; but gout, rheumatism, scrofula, syphilis, liver troubles and nervous diseases are unquestionably often hereditary in nature. A whole family may be especially prone to nervous troubles and one member have St. Vitus dance, another epilepsy, and another paralysis, or another insanity.

It is hardly probable that the actual disease itself is transmitted, but the peculiar formation of the organism make it liable to succumb to the disease.

Skin troubles, such as eczema and "birth marks," cancers, erysipelas, tendency to insanity and suicide and melancholy, scalp troubles and baldness, eye diseases and irregularities of vision and many other diseased conditions can be traced directly to parents or ancestors similarly affected. Whenever there is fear of hereditary disease manifesting itself, the greatest care should be taken to avoid all things that would aggravate the trouble. In this way manifestations of the disease may be lessened, and the danger of furthertransmission possibly averted.

SYMPTOMS DURING DISEASE.

The Skin.—The extensive surface presented for inspection by the skin, and the influence its great vascularity gives it over the circulation, rend it of more importance in examining patients than is usually supposed.

Coldness of the surface denotes recession to the internal organs, as on the approach of fever, pneumonia, arachnitis, etc.; in cholera and ague, before hemorrhages and in many chronic affections of internal organs. The greater the coldness, and the longer its duration, the more severe the ensuing difficulty; and the return of a cold surface and rigors toward the latter stages of acute maladies, is very unfavorable. Cold extremities and a warm face mark a tendency to acute cerebral difficulties, while similar warmth over the chest and abdomen points to acute difficulties in the viscera of these regions. Coldness on the face, while the rest of the body is warm, is discouraging; and in pneumonia and cerebral excitement, is very bad. The temperature of the forehead lowers after severe hemorrhages, and is an unfavorable sign in cholera and hydrocephalus. Heat upon one cheek, while the other is cool, is a mark of nervous or hectic fever. The nose gets cold early in cholera; coolness of it is considered unfavorable in any acute affection of the internal organs, as dysentery, arachnitis and pleurisy; and persistent loss of heat in this organ manifests a feebleness of circulation in the chylo-poietic and thoracic viscera.

The color of the skin is subject to great variations. A diffused scarlet blush denotes an ardent febrile action, as in synocha; and a more distinct arterial hue usually accompanies scarlatina and other exanthems. A clear red is favorable; but a heavy or purple red is unfavorable. Local redness may point to cutaneous inflammation, as in erysipelas; or the adjacent organs may be crowded, as when the face is red in apoplexy, epistaxis and acute arachnitis, and the chest flushed in pneumonia. Circumscribed redness of the cheeks suggests consumption, marasmus or other tuberculous difficulty. A purple blush upon the skin indicates capillary congestion, the blood being also unoxygenated from failure of healthy respiration. It is not a desirable sign, and becomes unfavorable according to the depth of the color and the vital importance of the organ affected. In typhus and asthma, it is common; in intermittents and pneumonia, it is very bad. Occurring on the face, it marks violent asphyxia or cerebral congestion. A leaden hue indicates gangrene when occurring locally, and a diffusion of this color points to incipient decomposition of the blood in typhus, yellow fever, poisoning and phlebitis. The integuments may be dyed a dirty black by the contined internal use of nitrate of silver; but this color also occurs in extreme cases of typhus, scurvy, small-pox and jaundice, and is always a most unfavorable omen. In asphyxia, chronic obstruction of the abdominal viscera, and after bad nourishment, portions of the skin may turn livid, which is unfavorable. Yellowness occurs in jaundice, yellow fever, bilious fever, and other cases where the escape of bile is impeded. An earthy hue indicates cachectic tendencies, as scrofula, tubercle and gout; also albuminuria. Paleness of the surface refers to anæmic conditions in cases of dropsy, chlorosis and paralysis; and to sudden nervous prostration, as in the commencement of miasmatic fever and in shocks. It is a very bad sign when accompanied by great internal heat.

Sweating is favorable when the excretion is warm and not too watery; when it follows the diminution of some other excretion, which had been excessive, and when (as in fever) the pulse softens and the patient becomes easier. Cold sweats indicate great nervous prostration, as in typhus, cholera and gangrene of internal organs; clammy sweats, and local watery sweats, are very unfavorable. Viscid sweats are to be distinguished from clammy: they generally occur after fainting, hemorrhages and gastric fever, when they are not alarming; but when other signs are unfavorable, these sweats are bad. Scanty sweating in febrile cases, when profuse sweating is expected, indicates bad internal complications; continued sweats, during convalesence, are bad; local sweats generally occur over the affected organ, give temporary relief, but serve no important purpose; critical sweats generally occur between midnight and morning. •

Tenseness of the skin is common in fever and inflammation. Occurring over the face, when apoplexy is apprehended, it is very bad. Unfavorable in delirium and nervous fevers. The skin may also be tense in dropsies and emphysema. Relaxed cutaneous tissue indicates great debility, and is discouraging when accompanied with dryness, as in many chronic disorders.

The skin is liable to many eruptions besides those peculiar to the exanthems. Roseolar and miliary eruptions are more favorable than pemphigus and ecthyma. Petechiæ, or blotches of extravasated blood, occur in typhus, putrid fever and low stages of small-pox. They are of serious import wherever observed.

The Face.—The features are very expressive. A tranquil countenance is favorable, except when it follows a sudden cessation of pain, and then it heralds local gangrene or paralysis. When the features become suddenly serene, after having been drawn into a morose expression, delirium or spasms may be apprehended. A fixed look, bright eyes, tremulous lips covered with sordes, and an indifferent expression, are unfavorable signs, denoting nervous prostration, as in typhus. Contorted and painful features refer to abdominal disease, and when associated with a look of despair, as in cholera, are of bad import. Sharpness of the nose, sunken eyes, depressed temporal fossæ, paleness of the whole face and coldness of the ears, are observed in what has been termed the Hippocratic countenance, and are always unfavorable. Pinching of the nose is bad, generally denoting pressure on the brain and consequent paralysis. Rapid movements of the alæ nasi occur in severe congestion of the lungs, and are bad signs; very bad when they cease suddenly.

A white, mucous coating of the lips accompanies intestinal irritation. Purple lips and a listlessly open mouth proceed from impure blood and pressure on the brain, as in severe typhus, pneumonia and appoplexy, and are very unfavorable. A brown coating of the lips is of serious import in typhus. Contortion of the mouth may result from spasm or (permanently) from paralysis. It is observed temporarily in alvine irritation and hysteria; also in typhus, arachnitis and acute exanthems, in which case it is very unfavorable—indicating cerebral pressure and prostration.

Voluntary wrinkling of the forehead points to cerebral difficulties and marks the approach of delirium; involuntary wrinkling precedes hysteria, epilepsy or other spasms. Firmly contracted eyelids refer to affections of the brain, and are bad; paralysis of the upper lid allows it to hang down loosely, and is very unfavorable when it follows appoplexy or hydrocephalus. An open state of the eyelids during sleep is unpromising.

Paleness and redness of the face, quickly alternating, characterize acute hydrocephalus. Shrunken cheeks, and emaciation of the face and temples, are unfavorable signs in phthisis, marasmus, cholera, dysentery, chronic hemorrhages and nervous prostration.

The Attitude.—Inability to lie down indicates thoracic difficulties, as phthisis, asthma, organic changes of the heart and hydrothorax. It is a bad sign when persistent, and unfavorable when occuring in pleurisy, bronchitis and simple dyspnea.

Quietness, with consciousness and strength, is good; but if the patient is debilitated, whether conscious or not, it is highly unfavorable, as in typhus, yellow fever, exanthems and peritonitis. Patients may lie still from fear of the pain provoked by motion. Restlessness is very unfavorable in rheumatism and thoracic inflammations.

A fixed position on the back is a mark of abdominal tenderness, as gastritis and enteritis, and is very common in peritoneal inflammation. Occasionally it is noticed in the latter stages of cerebral affections, paralysis and pneumonia. A position upon the abdomen indicates abdominal pain; and on the left side, organic disease of the heart. Patients toss about in colic and during the passage of gall-stones.

The Circulation.—The pulse, being a representative of the entire circulation, has always been regarded as an imporant aid in forming diagnosis and prognosis. The technicalities applied to it are numerous, and sometimes lead to mistakes by being misunderstood. Frequency refers to the rapidity of action, or the number of beats in a minute; quickness, to the suddenness with which each pulsation is made, or the sharpness with which the blood passes under the finger; strength, to its firm resistance during the diastole; hardness and tenseness, to the corded feeling presented in both systole and diastole; feebleness, to a weak impulse against the fingers; softness, to a full artery that offers slight resistance to pressure; smallness, to the size of the bloodvessel.

The action of the heart and arteries is liable to so many variations from age, sex, temperament, the condition of the mind, etc., that its semeiological language can be understood only by the exercise of great care. In early life, it is small and soft; in old age, it becomes hard almost to rigidity. It is smaller and quicker in females than in males; full, firm and quick in sanguine temperaments; full, firm and slow in the bilious; small, soft and moderate in the nervous; slower in the morning, and during the recumbent posture, than in the afternoon and while the sitting or erect posture is maintained. The following presents nearly the average frequency of the pulsations in different ages: At birth, 140; during infancy, 120 to 130; in childhood, 100; in youth, 90; adult male, 70 to 75; adult female, 75 to 80; old age, 70; decrepitude, 75 to 80.

These calculations were probably made upon persons in a sitting posture. Dr. Guy gives the following averages of adult healthy persons in different positions: Male—standing, 79; sitting, 70; lying, 67. Female—standing, 89; sitting, 82; lying, 80.

In examining the pulse, it is most convenient to feel the radial artery near the wrist; though in cerebral affections, where the pressure toward the brain is very great, the temporal artery may also be examined and its condition compared with the radial artery. After entering the sick chamber, allow some time to pass in familiar conversation, or an inquiry into the other symptoms, before attempting to feel the pulse. This allows the temporary excitement caused by your arrival to subside, and gives your own hand an opportunity to attain the temperature of the room. The patient, whether lying or sitting, should be placed in the easiest posture and have the arm so rested that all its muscles shall be relaxed as far as possible. Use three fingers to feel the pulse, press upon it with moderate firmness, avoid counting the beats by the watch unless it is absolutely necessary, continue your examination about half a minute at a time and cease talking while thus engaged. In most instances, especially in nervous cases, it will be well to repeat this examination twice at each visit.

A frequent pulse, which is at the same time full and strong, indicates ardent vital resistance to some obstruction in those tissues which are extensive, as the mucous, serous and synovial structures in dysentery, cystitis, pnemonia, arachnitis, puerperal fever, rheumatism, etc. It is more favorable than a frequent pulse that is small, which points to a depressed condition of the system and often occurs in the latter stages of the affections just mentioned. A small, corded and frequent pulse follows prostration by hemorrhage, and is sometimes the first sign noticed in internal uterine flooding.

Sometimes the radical artery contracts so feebly that the pulse recedes up the arm, and becomes almost lost. This occurs in fainting, after severe concussions of the brain and spine and in Asiatic cholera. It is an unfavorable symptom.

A quick pulse occurs in acute irritations in all localities. Associated with great frequency, it constitutes palpitation, and refers to either sympathetic or acute organic disease of the heart. When, in addition to these, it becomes small, great nervous prostration is indicated, as in typhus, hectic, nervous fever and when gangrene approaches. It is then very unfavorable, but is not of such serious import when it occurs in spasmodic cases. A sluggish pulse is present in organic disease of the heart and structural disease of the brain. It is usually associated with mental dullness. In scurvy and other semi-putrid states of the blood, the pulse is frequently sluggish.

A strong pulse is observed in congestions, as apoplexy, at the commencement of pneumonia and previous to hemorrhages from mucous surfaces. In apoplexy, it intimates a liability to frequent attacks: it is more favorable than the weak pulse, because it indicates greater vital power. If fullness of the blood vessel is associated with firmness of its coats, hemorrhage, profuse sweating, the appearance of an exanthematous eruption or other critical evacuation, may be expected in acute affections; it is an unfavorable sign in scurvy and other chronic disorders of the blood.

The weak pulse denotes nervous debility, and is unfavorable in typhus, hysteria, threatening gangrene, softening of the brain and where passive hemorrhage is feared. When a weak pulse also becomes small and thread-like, it marks great nervous prostration and is always unfavorable; very bad in typhus, pneumonia, arachnitis and after hemorrhages. If frequency accompanies smallness and weakness, the greatest danger is to be apprehended. A small and hard pulse is not so unfavorable.

A hard pulse usually indicates fibrous excitement, as in rheumatism, spasm, synocha and local inflammations. It shows a vigorous frame and an ardent vital resistance; but it also indicates decided obstruction to organic action, and is likely to be followed by suppuration. The pulse sometimes becomes peculiarly rigid in ossification of the heart and arteries. When hard and irregular, organic disease of the heart, or apoplexy, is to be dreaded. When hard and of a frequency nearly twice that of health, it is of unfavorable import unless relieved by some critical excretion in twenty-four hours. In hemoptysis, continued epistaxis and internal inflammation, as well as in various forms of fever, a pulse of this character is sometimes obstinately sustained in resistance to serious disease, and is always bad.

Irregular pusations, or those which are variously intermittent, commonly indicate feebleness of the heart; but they also occur in acute cerebral and abdominal affections, when they are of serious aspect. A rapid and irregular pulse is bad; and the less varying the action of the bloodvessel, the more promising the indication.

The veins are liable to many visible changes, such as a general state of distension—which indicates a tendency to congestion in such central organs as the heart, lungs and chylopoietic viscera. If the distension occur in the neck and temples, it suggests congesions of the brain; if in both lower extremities, sluggish portal circulation and chronic affections of the liver may be expected; if only one extremity, the disease is generally confined to the bloodvessels of that limb, as in varix.

The Nervous System.—Pain is of such various characters, and is liable to so many vascillations, that words cannot be used to advantage further than to describe the chief signs connected with it. A fixed pain denotes a seated difficulty; the acuteness of it generally depends on the denseness of the part concerned, being greater in arthritis and peritonitis than in inflammatory affections of the mucous membranes; when the pains wander from part to part, it is either through the function of the sympathetic nerve, or the disease relates to the nervous system itself. Increase of pain on pressure is characteristic of inflammation; in simple irritation, pressure does not increase pain; while in colic and true neuralgia, pressure relieves the acute suffering. Continuous, unremitting pain shows persistent obstruction, and is liable to be followed by suppuration; remitting pain is of more favorable import and, when aggravated by use of a part, is a sure sign of disease in that part. Pain through internal organs is not promising; and when it recedes from external to more internal parts, it is a discouraging sign. Absence of pain in a malady where it is usually present, generally denotes cerebral pressure, and is bad. The occurrence of internal pains after the commencement of critical movements, is unfavorable. The sudden cessation of pain, when the other symptoms do not abate at the same time, is a sign of approaching debility or gangrene.

Pain in the head, increased upon pressure, is generally rheumatic, gouty or connected with external cranial disease. In consumptives, it is unfavorable. Internal pain, not increased upon pressure, commonly refers to some cerebral difficulty. An internal pain, extending over the entire head, indicates hyperæmia. Constant local pain, coetaneous with paralysis, usually points to softening of the brain, or pressure from internal tumors. Frontal pain indicates intestinal and hepatic disease, unless caused by obvious catarrh or local caries. Pain in one or both temples follows mental exertion, or the sympathetic irritation of hysteria. Pain at the top of the head is associated with hysteria and hypochondria.

Distressing anxiety about the heart during respiration, occurs in organic disease of the heart and its vessels. General uneasiness precedes the reaction of fever, and, when long continued, points to extensive obstruction. When a feeling of great local anxiety follows acute pain, suppuration or gangrene, or alarming prostration in typhus and nervous fevers, may be expected. A degree of uneasiness which amounts to restlessness, is unfavorable in the commencement of acute maladies; occurring during their progress, it denotes inflammatory excitement; appearing just before a critical discharge, it is favorable, but is unfavorable when it continues after the crisis has passed.

Sleep, when natural, is always encouraging, and denotes amendment when it follows any form of cerebral excitement. In all affections where the nervous system is either directly or sympathetically concerned, the procurement of a full amount of natural sleep is always good: but the artificial quiet secured by the use of anodynes, is more baneful than otherwise. Sleeplessness is foreboding after the first few days of acute maladies; and indicates cerebral complications in both acute and chronic affections. Uneasiness in sleeping is met in cerebral irritation, nervous fever, hysteria, pneumonia, etc., and is always bad. Sudden awakening soon after falling asleep, points to maladies of the heart; startings during sleep, and awakening with the mind confused, generally refer to intestinal irritation, as of worms in children. Unusually long and heavy sleep indicates pressure upon the brain, as in arachnitis, hypdrocephalus, softening and concussion. It sometimes occurs in phthisis, when it forebodes speedy death. Very long and easy sleep may occur after sleeplessness, delirium and intense pain, and during convalescence, when it is a sign of a favorable condition of the system. Very profound sleep, termed sopor, coma and lethargy, according to its several degrees, also marks cerebral complications in acute difficulties, and appertains to catalepsy, epilepsy, eclampsia, softening, etc. It is always of unfavorable import. If convulsions or delirium accompanies or precedes coma, the danger is very great.

Stupor, or inability to converse correctly, manifests nervous depression, and cerebral pressure and softening. Stupor at the commencement of typhus, nervous fever and the acute exanthems, is unfavorable. Delirium is nearly always an unpromising sign. Nervous persons, and those liable to cerebral affections, suffer delirium easily. Occurring in acute fever, and rising and falling regularly with the changes of the arterial excitement, delirium is not as dangerous as when it appears in the beginning of fever, in the cold stage of intermittents, and in abdominal and thoracic inflammation. If it is manifested after loss of blood, profuse sweating, and with the prostration and paleness sometimes observed in typhus, pneumonia and peritonitis, it is of the most serious import.

Furious delirium most commonly occurs in ardent inflammation. Low, muttering delirium often appears in typhus and other nervous prostrations, and is very serious. A quiet delirium, succeeding furor and accompanied by sinking of the pulse and general prostration, is very unfavorable. A general and somewhat rapid wandering of all the faculties of the mind, is more favorable than a continuous adherence to one fixed train of abberration. Tranquil sleep after delirium is favorable; but a sudden cessation of delirium, while the unnatural breathing and pulse continue, generally precedes death. Chronic delirium constitutes one form of insanity.

On being called to a case of deep coma, there will often be experienced great difficulty in deciding whether this condition is due to apoplexy, or to a large dose of opium, or to a poisonous quantity of alcohol. The points which will assist the practitioner in forming an opinion are: The history of the patient, his general appearance and such other circumstances as can be gleaned from his friends; the smell of his breath; his condition in life, and the state of his mind for the previous few days. In cases of poisoning by opium, the pupils are contracted, sometimes to the size of a pin's point; in deep intoxication they are often dilated, but sometimes contracted; and so in apoplexy.

The Respiratory Organs.—Respiration, like circulation, is subject to a multitude of changes during actual health, being slower in males than females, quicker and louder in children than in adults, and slower during sleep than in wakefulness. The number of full respirations in the adult male is commonly eighteen in a minute, or one to every four pulsations of the heart; and they change to slower or more rapid in about the same ratio that the pulse does. Slow breathing occurs in organic affections of the heart, fainting, concussion, and, in general, from those difficulties which cause sudden coma. Accompanied by cold extremities and a weak pulse, it is bad. Large inspirations, performed slowly, point to cerebral pressure, as in apoplexy, before convulsions and in arachnoid inflammation. Respiration of this character occurs in pneumonia, pleuritic effusions and emphysema, and may be distinguished from that which is noticed in the other class of cases, by observing the smaller quantity of air which is inhaled at each inspiration. Enlargement of the liver and spleen, and general debility, may also cause small respiration.

Feeble efforts at respiration precede death in typhus, consumption, etc.; but are not unfavorable in syncope. Labored breathing arises from obstructions in the air passages, as in croup, asthma and acute bronchitis. The greater the exertion, the worse the omen. Irregularities of respiration are unfavorable, generally arising from cerebral disease and severe pneumonia.

When the abdomen moves during inspiration, and the ribs remain almost still, pleurisy or acute pneumonia is indicated. If the ribs move and the abdomen is held at rest, hepatic, gastric or splenic difficulties may be suspected; though this mode of respiration is met in peritonitis and severe enteric inflammation. When only the upper ribs move, cardiac and acute laryngeal disease is indicated. If the inspiration alone is difficult, croup, œdema glottidis, whooping cough, or other affections of the larynx, are connected with it. In bronchial affections, it is the expiration that is most laborious.

Dyspnea may arise from any condition of disease that disturbs the equilibrium between the quantity of blood sent from the left ventricle and the air taken into the lungs, as pneumonia, pulmonary congestion, phthisis, cardiac disease, etc. When continuous and permanent, it is unfavorable, whether in acute or chronic disorders of the thoracic viscera. Inability to breathe in any other than an erect posture occurs in asthma, hydrothorax and anasarca. It is unfavorable, but not as much so in asthma as its severity would at first lead one to suppose.

Loud and stentorous breathing occurs in apoplexy and cerebral pressure—especially in surgical cases. It is a bad prognostic. It sometimes precedes death in pneumonia, bronchial catarrh and phthisis. Hiccough is a spasmodic affection provoked by abdominal irritations and reflex irritations of the brain. Occurring in strangulated hernia, peritonitis, typhus, dysentery and enteritis, it is of the most favorable import.

The Tongue.—The tongue, by the continuity of its mucous covering with the other mucous membranes, presents sympathetic signs of the condition of the intestines and lungs. A moist tongue is good. Dryness refers to internal irritation, as in diarrhea, pneumonia, typhus, gastritis, etc. The greater the dryness, the more unfavorable the prognosis; and a fissured tongue is always unpromising. When the tongue, after having been furred, becomes dry, rough and dark, suppression of all the secretions, contamination of the blood and serious prostration may be expected. Moisture succeeding dryness is decidedly encouraging.

A white, moist fur occurs in acute fevers, when the intestinal irritation is moderate. A very heavy fur indicates greater gastric disturbances and a tendency to nervous depression, as in typhus, typhoid, diarrhea and the acute exanthems. A yellow coating indicates hepatic obstructions; a brown coat points to nervous prostration with a tendency to putrefaction, as in scurvy, nervous fever and typhus. A brown tint is always unfavorable, the deeper the hue, the worse the omen; and when dryness and fissures are added to this color, great danger is to be apprehended. Returning moisture, and a disposition to clear away the coating, are encouraging.

A mucous, white coating is present in mild dysentery and diarrhea. A beef-red tongue refers to chronic inflammation of all the mucous surfaces and the hepatic organs. A scarlet red indicates acute inflammation; and is a sign of gastric irritation when occurring at the point and edges of the tongue. Redness along the center refers to irritation in the smaller intestines; and is met in typhus and nervous fever, before the peculiar sensitiveness of the bowels begins. If this red strip is of a glassy, varnished appearance, the sign is not favorable; but if it becomes moist in twenty-four hours it is a good omen. A bluish-red tongue occurs in asthma, carditis, small-pox and other affections, when the respiration is seriously interfered with.

The tongue is sometimes covered with false membranes, either in patches or over its entire surface. It is not a favorable condition. Small, red papillæ appearing at the point, denote irritable humors; apthous pustules may be present from thrush, or they may accompany intestinal and pulmonary difficulties, when they are decidedly unfavorable. When bluish-brown and dry, they are very unpromising. A tremulous tongue denotes nervous prostration; and is a bad omen in all acute affections, except hysteria.

The manner in which a furred tongue clears off, is of importance. A slow breaking away of the coat from the tip and edges, denotes a permanent recovery; if it disappear in patches, and leave a smooth, red surface, recovery will be tedious; when it is removed rapidly and leaves a dark, cracked or glassy surface, the omen is of unfavorable import in all cases.

MASSAGE.

Massage is the art of rubbing the body in a scientific manner so as to increase the activity of various functions and to aid in restoring diseased structures to their natural conditions. To properly perform massage an expert should be employed, who understands anatomy and physiology, so that each organ and each set of tissues may receive suitable manipulation. Nevertheless much may be accomplished by an amateur masseur who possesses common sense and sufficient energy.

Massage should be performed in a warm room, well ventilated, the patient being upon a firm but well-padded table. Cocoanut oil should be used to rub over the body while the manipulations are being performed; but if this is not procurable, sweet oil or even vaseline may be used, all surplus being wiped off. Cocoanut oil has the great advantage of being quickly absorbed by the skin and affording nourishment to the body in addition to lubrication. The assistant performing the manipulation should possess strength and health and if possible a magnetism of touch that can be realized. While the manipulations are being performed only those portions of the body should be exposed as are being operated upon.

General Massage.—This consists in manipulating the entire body by rubbing and pounding and kneading, commencing at the neck and gradually reaching the feet; picking up the skin between the fingers and letting go of it suddenly; then grasping deeper into the body so as to include deep structure, let go of them suddenly, and repeat the process several times at each spot, without making the parts too tender by pinching. Next with the half-clenched fists knead the body thoroughly, though not roughly, and finish by gently slapping the body with the palms and then rubbing with a rough towel. After the whole body has been thus treated there will be a healthful glow over the surface and the general circulation will be greatly benefited. As the various regions of the body are reached they should be treated as below.

Abdominal Lifting.—In many persons the organs of the abdomen, especially the intestines, settle down and need to be lifted into their proper position. The patient lies on the back with the knees drawn up toward the abdomen and all the muscles of the body as relaxed as possible, as tense tenseness of the muscles interferes with good results. As the patient breathes slowly the operator should press with his hands upon the lower part of the abdomen and slowly and firmly press upward. Every time the patient breathes outward, extra pressure should be made upward. In this manner the downward pressure of the contents of the abdomen is relieved, and the peristaltic action is increased. Fleshy persons, especially those over forty years of age, are most benefited by abdominal massage. It is also most useful in overcoming constipation caused by sluggishness of the intestinal tract.

Stomach Massage.—Let the patient lie flatly upon the back with all muscles relaxed. Let the assistant assume a position near the patient's right shoulder, the back toward the patient's face; he then opens the right hand and places it firmly to the left of the patient's navel, and pressing rather hard, draws it up toward the ribs, slightly shaking it as he moves it to a point over the stomach. In this way the tissues have been drawn together and he holds them there with the tips of the fingers of the left hand and repeats the movements of his right hand several times. After this process the abdomen, just below the stomach and the region over the stomach, may be kneaded for twenty minutes or more. This form of stomach massage is excellent for indigestion and dyspepsia.

Abdominal Massage.—Place one hand flatly upon the right side of the patient's abdomen and the other upon his left side, and proceed to knead the abdomen and its contents most thoroughly, pressing hard with the base of the hand toward the operator and using the fingers of the other hand. Old persons and those who have lost considerable flesh can be well treated by this method, although it is not well to use it upon fleshy persons, as it cannot then be easily or satisfactorily employed. Fleshy persons are greatly benefited by striking the abdomen rapidly with the side of the hands (the side of the little fingers), keeping the fingers as widely apart as possible and striking every part of the abdomen.

Intestinal Massage.—This is essentially a kneading of the abdomen, following the line of the tract of the bowels. Commence in the lower right-hand portion of the abdomen and make pressure and a kneading motion with one half-closed fist and the next one immediately above it. Proceed upward, pressing first one fist and then the other, until the ribs are reached, then cross over in the same manner to the left and proceed downward to the lower point of the left-hand side of the abdomen and then toward the center at the lowest point. Repeat the manipulation several times. In this manner the movements of the large bowel will be followed and the activity increased. It is a most excellent method of overcoming the constipation which is often the accompaniment of dyspepsia.

Movements of the Limbs.—After general massage it is advisable to move the limbs freely. Bend the arms at the elbows and then raise the arm thus bent as high as possible; next stretch the arm its full length and cause it to describe an imaginary circle. Bend the legs at the knees and then press them against the abdomen, quickly extend them and stretch them as much as possible and then describe a circle with the hip as the center.

The kneading of the bowels can be performed without an assistant, and will be found a great aid in dyspepsia.

DIVISIONS OF LIFE

Pre-Natal Period.—The child is to a great extent influenced by the mother before it is born. The habits of life, methods of eating, thoughts, mental employment and her relationship to others all leave their impression upon the unborn babe. The prospective mother should control her anger, exercise habits of cheerfulness and industry and in every way possible endeavor to lead such a life as she most desires her unborn child should lead.

Infancy.—An infant's muscles and all its tissues are soft and all the functions of the body are performed rapidly and development takes place rapidly; nearly five times as much food is required in proportion to its size as is required by an adult. The pulse rate is about 120 per minute instead of 72, and the respirations are from 24 to 30 per minute, instead of 17. The dangers of infancy are great, and one of the greatest is the probability of improper feeding. A child should be fed only upon mother's milk until the incisor or front teeth are cut, which occurs about the ninth month. Only the greatest necessity should permit of any other form of food being given till then. Weaning should be gradual after the ninth month, commencing by giving a little cow's milk each day. Regularity in nursing and in feeding are of the utmost importance, and from the earliest period the habit of regular eating should be taught. During the first two years of existence milk should be the chief article of diet.

The dangers from cold are great during infancy and too much care cannot be taken in guarding against it. Drafts of air should be avoided, flannel should be worn about the abdomen and the legs and feet kept especially warm.

Bowel troubles are frequent during infancy, especially during the period of dentition, and at that time meats and gravies and strong foods should be avoided. Abundance of sleep should be allowed infants, and until a child is at least four years old a nap during the day is imperative.

Childhood.—This period extends from the end of the third to the end of the seventh year. It is characterized by a tendency to throat and glandular troubles, fevers, epidemic diseases and brain troubles. The food during this period must be light, yet abundant, and given with regularity. Over excitement and too early excitement must be avoided, as the brain, spine and nerves are developing rapidly and are sensitive. Habits of regularity must now be established—regularity in sleeping, eating, playing, evacuating the bowels, etc. In this way the foundation for a healthy and useful life will be properly laid.

Adolescence.—From the seventh to the fourteenth year the tissues of the body gradually lose their softness and become more solid, the first teeth are lost and the second set take their places, the bones become harder and the brain and nervous system develop and become very sensitive, causing danger of St. Vitus' dance and other nervous troubles and requiring gentle yet firm management. During adolescence it is especially necessary to provide an abundance of wholesome food, which should be eaten with regularity. Children during this period have sharp appetites, which must be satisfied, if proper growth and development are to continue. The clothing must be such as will protect the body well from changes of temperature, an abundance of outdoor exercise must be allowed and as little restraint as possible exercised. Study hours should not be too long and nothing is gained by studying too hard.

Puberty.—This period embraces the time between the fourteenth and twentieth years, during which the generative organs develop and manhood and womanhood are realized. Growth is rapid and the full height attained. The nervous system becomes sensitive and habits, good and bad, are easily formed. During this period plenty of nourishing food is necessary, outdoor life is imperative and care must be taken against overstraining, overstudy and excesses of all kinds.

Adult Age.—From the twentieth to the end of the forty-fifth year the body gradually matures. It is the busy season of life, when all its energies are most active and common sense must constantly rule all movements.

The Turning Point takes place between forty-five and sixty. The diet should become more simple, violent actions must be avoided and regular habits observed in all things—eating, sleeping, exercise, bathing, etc. Clothing must be well adapted to changes of the weather and all excesses avoided. Life should now be led as easily and pleasantly as possible.

Advanced Age.—Between sixty and eighty years of age a person may be said to be in advanced life, and from eighty to one hundred old age is the term given to existence. Some persons grow old more rapidly than others, due to their disregard of the laws of life should be followed during the earlier periods. When a person reaches sixty and then possesses a rugged and erect figure, a clear skin and open countenance, an elastic step and a cheerful disposition, no credentials of past good behavior are necessary.

During old age nutrition is less active, the muscles accordingly begin to waste and the skin consequently to wrinkle, the arteries become brittle and liable to break, as in apoplexy, the activity of the circulation diminishes and the skin becomes dry and subject to eczema, tetter and other like affections. Malignant ulcers and cancers are most frequent in old, advanced life. And on account of the hardening of the skin extra burdens are thrown upon the kidneys, which cause them to break down, with resulting kidney diseases.

In this advanced period of life warmth is a necessity and all sudden changes should be avoided. The food should be light, soft and nourishing. Lime water and excess of cereals and all violent exercise should be avoided. Sleep should be taken in abundance and mental quietude and freedom from worry are important.

TEMPERAMENTS.

Every part of everything bears an exact correspondence to that thing as a whole. Thus, tall-bodied trees have long branches and leaves, and short-bodied trees short branches and roots, while creeping vines, as the grape, honeysuckle, etc., have long, slim roots that run under ground as extensively as their tops do above. The Rhode Island greening is a large, well-proportioned apple, and its tree is a large trunk. limb, leaf and root, and symmetrical, while the gilliflower is conical and its tree long-limbed and even high to a peak at the top, while flat and broad-topped trees bear wide, flat, sunken-eyed apples. Very thrifty growing trees, as the Baldwin, fall pippin, Bartlet, black Tartarian, etc., generally bear large fruit, while small fruit, as the seckle pear, lady apple, bell de choisacherry, grow slowly and have many small twigs and branches. Beautiful trees that bear red fruit, as the Baldwin, etc., have red inner bark; while yellow and green-colored fruits grow on trees the inner rind of whose limbs is yellow or green. Peach trees that bear early peaches have deeply notched leaves, and the converse of late ones; so that, by these and other physiognomical signs, experienced nurserymen can tell what a given tree is at first sight.

In accordance with the law of unity of structure, long-handed persons have long fingers, toes, arms legs, bodies, heads and phrenological organs; while short and broad-shouldered persons are short and broad-handed and fingered, faced, nosed and limbed and wide and low-bodied. When the bones on the hand are prominent all the bones, nose included, are generally so, and thus of all other characteristics of the hand and any other part of the body. Hence, let a hand be thrust through a hole and one can tell the general character of its owner, because if it is large or small, hard or soft, strong or weak, firm or flabby, coarse-grained or fine-textured, even or prominent, rough or smooth, small boned or large boned, or whatever else, his whole body is built upon the same principle, with which his brain and mentality also correspond. Hence, small-nosed persons have little soul and large-nosed a great deal of character of some kind; large nostrils indicate powerful lungs and bodies, while narrow ones indicate weak lungs and bodies. Flat noses indicate flat minds and prominent noses indicate strong points of character, sharp noses keen, clear intellects and intense feelings, blunt noses obtuse minds, long noses long heads, hollow noses tame characters, finely formed noses well proportioned character, etc., and thus of every part of the body. And it is meet philosophical, accordant with the principles of adaptation, that this should be thus, and renders observations on character easy and correct.

In general, too, tall persons have high heads and are more aspiring, aim high and seek conspicuousity, while short ones have flat heads and seek worldly pleasures. Tall persons are rarely mean, though often grasping; but very penurious persons are often broad built. Small persons generally have exquisite mentalities, yet less power; while great men are rarely dwarfs, though great size often co-exists with sluggishness. To particularize, there are four leading forms which indicate generic characteristics, all existing in every one, yet in different degrees. They are these:

The Broad or Vital Structure.—Thus, Indian ponies are broad built, or thick-set, and accordingly very tough, hardy, enduring labor and tenacious of life, yet less active and nimble. Bulldogs, elephants and all-round favored animals and men also illustrate this law. Rotundity, with a moderate-sized head, indicates ancestral longevity, and unless health has been abused renders its possessor strong-constitutioned, slow to ripen or better as they grow older, full of animal life, self-caring, money-making, fond of animal pleasures, good feeling, yet spirited when aroused, impulsive, more given to physical than mental action, better adapted to business than study and talking than writing, more eloquent than argumentative, wide rather than high or long-headed, more glowing than cool in feeling and more enthusiastic than logical or deep.

The Muscular or Powerful Temperament gives projecting features, bones, noses, eyerows, etc., with distinctness of muscle, and renders its possessors strong, tough, thorough-going, forcible, easy yet powerful motion, perhaps slow, but very stout, strongly marked, if not idiosyncratic, determined and impressive, both physically and mentally, who stamp their character on all they touch.

The Long or Active Form.—These have activity. The gazelle, deer, greyhound, weasel and all long and slim animals, are sprightly, light-motioned, agile, quick, nimble and full of action, and those persons thus formed are restless, wide awake, always doing, eager, uncommonly quick to think and feel, sprightly in conversation, versatile in talent, flexible, suggestive, abounding in ideas, apt at most things, exposed to consumption, because their action exceeds their strength, early ripe, brilliant and liable to premature exhaustion and disease, because the mentality predominates over the vitality.

The Sharp and Angular or Mental Organization.—These have ardent desires, intense feelings, keen susceptibilities; enjoy and suffer in the extreme; are whole-souled, sensitive, positive in likes and dislikes, cordial, enthusiastic, impulsive; have their hobbies, abound in good feeling, yet are quick-tempered, excitable, liable to extremes; two much creatures of feeling and have a great deal of what we call soul, or passion, or warmth of feeling. This temperament prevails in brilliant writers or speakers, who are too refined and sensitive for the mass of mankind. They gleam in their career of genius and are liable to burn out their vital powers on the altar of nervous excitability.

Combinations of Temperaments.—These shapes or structures called temperaments, however, never exist separately; yet since all may be strong or all weak, or either predominant or deficient, of course, their combinations with each other and with the phrenology exert potent influences over character and put the observer in possession of both the outline and the inner temple of character.

Breadth of organization gives endurance, animal power and animal feelings, and sharpness gives intensity of action, along with mind as mind, and the two united give both that rapidity and clearness of mind and that intense glow of feeling which make the orator. Accordingly all truly eloquent men will be found to be broad built, round-shouldered, portly and fleshy, and yet rather sharp-featured.

The Excitable, Oratorical or Mental Vital.—The sharp and broad, combined with smallness of stature, is still more susceptible, yet lacks strength. Such will be extremely happy or most miserable, or both, and are liable to die young, because their action is too great for their endurance.

The vital mental, or broad and sharp, gives great power of constitution, excellent lungs and stomach, strong, enjoying susceptibilities, intense love of pleasure, a happy, easy-loving cast of body and mind, powerful passions, most intense feelings and a story and song-loving disposition, and with large tune, superior singing powers. This is, par excellence, the singing temperament.

The Vital Temperament is indicated by the broad and prominent in shape and renders its possessor of good size and height, if not large; well proportioned, broad-shouldered, muscular, nose and cheek bones prominent, visage strongly marked, features often coarse and homely; countenance stern and harsh, face red, hair red or sandy, if not coarse, and movements strong, but often awkward and seldom polished. He will be best adapted to some laborious occupation and enjoy hard work more than books or literary pursuits; have great power of feeling and thus require much self-government; possess more talent than he exhibits to others, manifests his mind more in his business, in creating resources and managing matters than in literary pursuits or mind as such, and improve with age, growing better and more intellectual as he grows older, and manufactures as much animal steam as he can work off, even if he works all the time hard. Such men accomplish, are strong-minded, sensible, hard to beat; indomitable, often impulsive and strong in passion when once aroused, as well as often excellent men. Yet this temperament is capable of being depraved, especially if the subject drinks. Sailors usually have this temperament, because fresh air and hard work induce it.

The Motive Mental Temperament.—This is prominent and sharp in structure, with the motive predominant and vital average or full, is of good size; rather tall and slim, lean and raw-boned, if not homely and awkward; poor in flesh, bones and features prominent, particularly the nose; a firm and distinct muscle and a good physical organization; a keen, piercing, penetrating eye; the front upper teeth rather large and projecting; the hands, fingers and limbs long; a long face, and often a high forehead; a firm, rapid, energetic walk and great ease and efficiency of action, accompanied with little fatigue.

He will have strong desires and much energy of character; will take hold of projects with both hands and drive forward in spite of obstacles, and hence is calculated to accomplish a great deal; is not idle or lazy, but generally prefers to wait upon himself; will move, walk, etc., in a decided, forcible and straightforward manner; have strong passions; a tough and wiry brain and body; a strong and vigorous mind, good judgment, a clear head and talents more solid than brilliant; be long-headed, bold, cool, calculating; fond of deep reasoning and philosophizing, of hard thinking and the graver and more solid branches of learning. This is the thorough-going temperament; imparts business powers, predisposes to hard work and is indispensable to those who engage in great undertakings or who would rise to eminence.

One having the mental temperament predominant, the motive full or large and the vital average too full, will differ in build from the preceding description only in his being smaller, taller in proportion and more spare. He will have a reflective, thinking, planning, discriminating cast of mind; a great fondness for literature, science and intellectual pursuits of the deeper, graver kind; be inclined to choose a professional or mental occupation; to exercise his body much, but his mind more; will have a high forehead, good moral faculties and the brain developed more from the root of the nose than around the ears. In character also the moral and intellectual faculties will predominate. This temperament is seldom connected with depravity, but generally with talent and a manifestation not only of superior talents, but of the solid, metaphysical, reasoning, investigating intellect, a fondness for nature, philosophy, the natural sciences, etc. It is also the temperament for authorship and clear-headed, labored productions.

The long and sharp combine the highest order of action and energy with promptness, clearness and untiring assiduity and considerable power. Such are best fitted for some light, active business, requiring more brightness and quickness than power, such as merchants.

The Mental Vital.—The finest and most exquisite organization is that which unites the mental in predominance with the animal, the prominent retiring. In this case the person is rather short, the form light, the face and person full and the hair brown or auburn, or between the two. It will sometimes be found in men, but much oftener in women. It is the feeling, sentimental, exalted, angelic temperament, and imparts devotion, exquisiteness, susceptibility, loveliness and great moral worth.

Laugh Corresponds with Character.—Those who laugh very heartily have much cordiality and whole-souledness of character, except that those who laugh heartily at trifles have much feeling, yet little sense. Those whose giggles are rapid, but light, have much intensity of feeling, yet lack power; whereas those who combine rapidity with force in laughing combine them in character. One of the greatest workers I ever employed I hired just because he laughed heartily, and he worked just as he laughed. But a colored domestic who laughed very rapidly, but lightly, took a great many steps to do almost nothing and, though she worked fast, accomplished little. Vulgar persons always laugh vulgarly, and refined persons show refinement in their laugh. Those who ha ha right out, unreservedly, have no cunning and are open-hearted in everything; while those who suppress laughter and try to control their countenances in it are more or less secretive. Those who laugh with their mouth closed are noncommittal; while those who throw it wide open are unguarded and unequivocal in character. Those who, suppressing laughter for a while, burst forth volcano-like, have strong characteristics, but are well governed, yet violent when they give way to their feelings. Then there is the intellectual laugh, the love laugh, the horse laugh, the philoprogenitive laugh, the friendly laugh and many other kinds of laugh, each indicative of corresponding mental developments.

Walk as Indicating Character.—As already shown, texture corresponds to character and motion to texture, and therefore to character. Those whose motions are awkward, yet easy, possess much efficiency and positiveness of character, yet lack polish, and just in proportion as they become refined in mind will their mode of carriage be correspondingly improved. A short and quick step indicates a brisk and active, but rather contracted mind, whereas those who take long steps generally have long heads; yet if their step be slow they will make comparatively little progress, while those whose step is long and quick will accomplish proportionately much and pass most of their competitors on the highway of life. Their heads and plans, too, will partake of the same far-reaching character evinced in their carriage. Those who sluff or drag their heels drag and drawl in everything; while those who walk with a springing, bounding step abound in mental snap and spring. Those whose walk is mincing, affected and artificial rarely, if ever, accomplish much; whereas those who walk carelessly, that is, naturally, are just what they appear to be and put on nothing for outside show. Those who in walking roll from side to side lack directness of character and side every way, according to circumstances; whereas those who take a beeline—that is, whose body moves neither to the right nor left, but straight forward—have a corresponding directness of purpose and oneness of character. Those also who tetter up and down when they walk, rising an inch or two every step, will have many corresponding ups and downs in life because of their irregularity of character and feeling. Those, too, who make a great ado in walking will make much needless parade in everything else and hence spend a great amount of useless steam in all they undertake, yet accomplish little; whereas those who walk easily or expend little strength in walking will accomplish great results with a little strength, both mentally and physically. In short, every individual has his own peculiar mode of moving, which exactly accords with his mental character; so that, as far as you can see such modes, you can decipher such outlines of character.

The Mode of Shaking Hands.—Thus those who give a tame and loose hand and shake lightly have a cold, if not heartless and selfish disposition, rarely sacrificing much for others—probably conservatives, and lack warmth of soul. But those who grasp firmly and shake heartily have a corresponding wholesouledness of character, are hospitable and will sacrifice business to friends; while those who bow low when they shake hands add deference to friendship and are easily led, for good or bad, by friends.

Mouth and Eyes Expressive of Character.—Every mouth differs from every other and indicates a coincident character. Large mouths express a corresponding quantity of mentality, while small ones indicate a lesser amount of mentality. A coarsely formed mouth indicates power of character, while one finely formed indicates exquisite susceptibilities. Hence, small, delicately formed mouths indicate only common minds, but very fine feelings, with much perfection of character. Whenever the muscles about the mouth are distinct the character is correspondingly positive, and the reverse. Those who open their mouths wide and frequently thereby evince an open soul, while closed mouths, unless to hide deformed teeth, are proportionately secretive.

Those who keep their eyes half shut are peekaboos and eavesdroppers, and those who use squinting glasses are no better, unless they merely copy a foolish fashion. The use of quizzing glasses indicates either defective sight or defective mentalities, but are rarely if ever employed except as a fashionable appendage.

Those, too, who keep their coats buttoned up, fancy high-necked and closed dresses, etc., are equally non-communicative, but those who like open, free, flowing garments are equally open-hearted and communicative.

Intonations as Expressive of Character.—Whatever makes a noise, from the deafening roar of sea, cataract and whirlwind's mighty crash, through all forms of animal life to the sweet and gentle voice of woman, makes a sound which agrees perfectly with its character. Thus the terrific roar of the lion and the soft cooing of the dove correspond exactly with their respective dispositions; while the rough and powerful bellow of the bull, the fierce yell of the tiger, the coarse, gutteral moan of the hyena and the swinish grunt, the sweet warblings of birds, in contrast with the raven's croak and owl's hoot, each corresponds perfectly with their respective characters. And this law holds equally true of man—that the human intonations are as superior to brutal as human character exceeds animal. Accordingly, the peculiarities of every human being are expressed in his voice and mode of speaking. Coarse-grained and powerfully animal organizations have a coarse, harsh and grating voice, while in exact proportion as persons become refined and elevated mentally will their tones of voice become correspondingly refined and perfected. We little realize how much of character we infer from this source. Thus, some female friends are visiting me transiently. A male friend staying with me enters the room, is seen by my female company and his walks, dress, manners, etc., closely scrutinized, yet says nothing and retires, leaving a comparatively indistinct impression as to his character upon my female visitors, whereas, if he simply said yes or no, the mere sound of his voice communicates to their minds most of his character and serves to fix distinctly upon their minds clear and correct general ideas of his mentality.

The barbarous races use the gutteral sounds more than the civilized. Thus, Indians talk more down the throat than white men and thus of those men who are lower or higher in the human scale. Those whose voices are clear and distinct have clear minds, while those who only half form their words or are heard indistinctly, say by deaf persons, are mentally obtuse. Those who have sharp, shrill intonations have correspondingly intense feelings and equal sharpness both of anger and kindness, as is exemplified by every scold in the world; whereas those with smooth or sweet voices have corresponding evenness and goodness of character. Yet, contradictory as it may seem, these same persons not unfrequently combine both sharpness and softness of voice and such always combine them in character. There is also the intellectual, the moral, the animal, the selfish, the benignant, the mirthful, the devout, the love and many other intonations, each accompanying corresponding peculiarities of characters. In short, every individual is compelled, by every word he utters, to manifest something of his true character—a sign of character as diversified as it is correct.

Hair, Skin, Etc., Indicating Character.—Coarseness of texture indicates a coarseness of function; while a fine organization indicates a corresponding fineness of mentality. And since when one part is coarse or fine, all are equally so, so, therefore, coarseness of skin and hair indicate a coarse-grained brain and coarseness of mind; yet since coarseness indicates power, such persons usually possess a great deal of character of some kind. Hence dark-skinned nations are behind light-haired in all the improvements of the age and the higher, finer manifestations of humanity. So, too, dark-haired persons, like Webster, are frequently possessed of great power, yet lack the finer and more delicate shadings of sensibility and purity. Coarse black hair and skin, or coarse red hair and face, indicate powerful animal propensities, together with corresponding strength of character; while fine and light hair indicate quick susceptibilities, together with purity, refinement and good taste. Fine dark or brown hair indicates a combination of exquisite susceptibilities with great strength of character; while auburn-colored hair and a florid countenance indicate the highest order of exquisiteness and intensity of feeling, yet with corresponding purity of character and love of virtue, together with the highest susceptibilities of enjoyment and suffering. And the intermediate colors and textures indicate intermediate mentalities. Coarse-haired persons should never turn dentists or clerks, but should seek some outdoor employment, and would be better contented with rough, hard work than a light and sedentary occupation, although mental and sprightly occupations would serve to refine and improve them; while dark and fine-haired persons may choose purely intellectual occupations and become lecturers or writers with fair prospects of success. Red-haired persons should seek outdoor employment, for they require a great amount of air and exercise; while those who have light, fine hair should choose occupations involving taste and mental acumen, yet take bodily exercise enough to tone and vigorate their system.

Generally whenever skin, hair or features are fine or coarse the others are equally so. Yet some inherit fineness from one parent and coarseness from the other, while the color of the eye generally corresponds with that of the skin and expresses character. Light eyes indicate warmth of feeling and dark eyes power.

The mere expression of eye conveys precise ideas of the existing and predominant states of the mentality and physiology. As long as the constitution remains unimpaired the eye is clear and bright, but becomes languid and soulless in proportion as the brain has been enfeebled. Wild, erratic persons have a half-crazed expression of eye, while calmness, benignancy, intelligence, purity, sweetness, love, lasciviousness, anger and all the other mental affections express themselves quite as distinctly in the eye as voice, or any other mode.

Physiognomy.—Jackson Davis well remarked that, in the spirit land, conversation is carried on mainly, not by words, but by expression of countenance—that spirits look their thoughts and motions, rather than talk them. Certain it is that the countenance discloses a greater amount of thought and feeling, together with their nicer shades and phases, than words can possibly communicate. Whether we will or no, we cannot help revealing the innermost recesses of our souls in our faces. By what means is this effected? Clairvoyants say by magnetic centers called poles; each physical and mental organ has a pole stationed in a given part of the face, so that, when such organ becomes active it influences such poles and contracts facial muscles, which express the corresponding emotions. That there exists an intimate relation between the stomach and one part of the face, the lungs and another, etc, is proved by the fact that consumptive patients always have a hectic flush on the cheek, just externally from the lower portion of the nose, while inactive lungs cause paleness and healthy ones give the rosy cheek; and that dyspeptic patients are always lank and thin opposite the double teeth, while those whose digestion is good are full between the corners of the mouth and lower portion of the ears. Since, therefore, some of the states of some of the internal organs express themselves in the face, of course, every organ of the body must do the same—the magnetic pole of the heart beginning in the chin. Those whose circulation is vigorous have broad and rather prominent chins; while those who are small and narrow-chinned have feeble hearts, and thus all the other internal organs have their magnetic poles in various parts of the face.

Firmness is in the upper lip, midway between its edge and the nose, giving length, prominence and a compression of the upper lip. Hence, when we would exhort to determined perseverance, we say: "Keep a stiff upper lip." Self-esteem has its pole externally from that of firmness, and between the outer portion of the nose and mouth, causing a fullness as if a quid of tobacco were under the upper lip. The affections were described as having their poles in the edges of the lips, and hence the philosophy of kissing. The pole of mirthfulness is located externally and above the outer corners of the mouth, and hence the drawing up of these corners in laughter. Approbativeness has its pole directly outward from these corners, and hence the approbative laugh does not turn the corners of the mouth upward, but draws them straight back, or outwardly. Like locations were assigned to nearly all the other organs. That physiognomy has its science—that fixed and absolute relations exist between the phrenological organs and given portions of the face is not a matter of question. The natural language of the organs, as seen in the attitudes of the head, indicate not only the presence of large and active organs, but also the signs of their deficiency Self-esteem throws the head upward and backward toward the seat of its organ; approbativeness, back and toward the side of philoprogenitiveness, directly back, but not upward. Firmness draws the head up in a stiff, perpendicular position; individuality thrusts the head forward toward its organ and gives the man a staring, gazing aspect; small self-esteem lets the head droop forward. Man was made both to disclose his character and to read that of others.

Redness and Paleness of Face.—At one time the whole countenance will be pale, at another very red; each of which indicates the existing states of body and mind. Or thus: When the system is in a perfectly healthy state the whole face will be suffused with the glow of health and beauty, and have a red, but never an inflamed, aspect; yet any permanent injury of health, which prostrates the bodily energies, will change this florid complexion into dullness of countenance, indicating that but little blood comes to the surface or flows to the head and a corresponding stagnation of the physical and mental powers. Yet, after a time, this dullness frequently gives way to a fiery redness; not the floridness of health, but the redness of inflammation and false excitement, which indicates a corresponding depreciation of the mental faculties. Very red-faced persons, so far from being the most healthy, are frequently the most diseased, and are correspondingly more animal and sensual in character; because physiological inflammation irritates the propensities more, relatively than the moral and intellectual faculties, though it may, for the time being, increase the latter also. When the moral and intellectual faculties greatly predominate over the animal, such redness of the face may not cause coarse animality, because while it heightens the animal nature it also increases the intellectual and moral, which, being the larger, hold them in check, but when the animal about equals the moral and intellectual, this inflammation evinces a greater increase of animality than intellectuality and morality. Gross sensualists and depraved sinners generally have a fiery red countenance. Stand aloof from them, for their passions are all on fire, ready to ignite and explode on provocations so slight that a healthy physiology would scarcely notice them. This point can hardly be more fully intelligible; but let readers note the difference between a healthy floridness of face and the fiery redness of drunkards, debauchees, meat-eaters, etc. Nor does an inflamed physiology merely increase the animal nature, but gives a far more depraved and sensual cast to it, thus doubly increasing the tendency to depravity

Health and Disease as Affecting Mentality.—Health and disease affect the mind as much as the body. Virtue, goodness, etc., are only the healthy or normal exercise of our various faculties, while depravity and sin are only the sickly exercise of these same organs. Holiness and moral excellence, as well as badness, depend far less upon the relative size of the phrenological organs than upon their direction of tone and character, and this depends upon the state of the body. Or thus: A healthy physiology tends to produce a healthy action of the phrenological organs, which is virtue and happiness; while an unhealthy physiology produces that sickly exercise of the mental faculties especially of the animal propensities, which constitutes depravity and produces misery. Hence those phrenologists who look exclusively to the predominant size of the animal organs for vicious manifestations and regard their average size as indicative of virtue have this great lesson to learn, that health of body produces health of mind and purity of feelings, while all forms of bodily disease, in the very nature of things, tend to corrupt the feelings and deprave the soul.

PRACTICAL HORSE TRAINING.

PROF. GLEASON'S METHOD.

By the Publisher.

INTELLIGENCE AND MEMORY OF THE HORSE.

The form, proportions, muscular powers, and swiftness of the horse, combined with its spirit, docility and intelligence, expressly fit it for the use of man. It is alike serviceable for draught and the saddle. From its primeval nursery it has radiated in all directions; it has accompanied man in his wanderings over the world. To the industrious inhabitant of the thronged city to the agriculturist, to the sportsman who follows the chase for pleasure, and to him who scours the plains in quest of prey, a "mighty hunter before the Lord," this noble, beautiful, but too often ill-treated creature, is either important or essential. It performs the drudgery of toilsome servitude; it draws the peaceful plow, and dashes on in battle amidst withering volleys of musketry and the clash of gleaming swords. Man owes a deep debt of gratitude to the horse, and is bound to acknowledge his sense of its value by humanity and kindness. In its natural state, the horse is gregarious; and in domestication it exhibits the same propensity to associate with its fellows. In the field they herd together, form friendships, gambol with each other, and rush to the fence to see a strange horse in the road, saluting him with repeated neighings. So decided is the disposition of the horse to contract friendship that, when others of its species are not accessible, it will attach itself to animals of a different species. Many instances of mutual attachment between dogs and horses have been recorded. The celebrated English horse Eclipse contracted a strong friendship with a sheep. When kindly used, the horse will demonstrate towards his master every mark of submissive attachment. There are, it is true, horses of a sullen, obstinate temper, which the kindest treatment will not conciliate; but these are exceptions to the general rule; many horses, we may add, have their temper spoiled by injudicious or wanton severity, in which case it requires patience and perseverance to reclaim them; but almost universally, where kindness is shown to the horse, his attachment will be secured.

In the tents of the Arabian, the mares with their foals, and the masters with their families, dwell all together; the master caresses his favorite mare, the children and the foal play together, and the utmost confidence exists between them. The quiet peaceful companionship of horses with each other does not obtain among the stallions. In a wild state, they have furious contests; and in a domestic state, stallions, if at liberty, will fight desperately with each other.

That the horse possesses more intelligence than has been accredited to him is very evident from his readiness to learn, when properly instructed. The feats he is taught to perform in the modern "horse shows" fully prove this. Knowledge of time, and memory, are certainly possessed by the horse, as a thousand instances will prove. A horse accustomed to commence or discontinue work at a certain hour of the day well knows the respective periods. Well does the farmer's team know the hour of release from labor, as is shown by their actions when hearing the horn for dinner. Taken to a distance from home, the horse will return, finding his way during the darkest night. In short, there is no lack of evidence to prove that horses are capable of entertaining and evincing a large degree of love for places as well as for individuals, and of retaining impressions unimpaired for a lóng period of time.

Colonel Hamilton Smith, of the British Army, relates a case which proves the memory and attachment of the horse: "The Colonel had a charger in his possession for two years, which he left with the army, but which was brought back and sold in London. About three years afterwards the Colonel chanced to be traveling, and at a relay, on getting out of the mail coach, the off-wheel horse attracted his attention; on going near to examine it with more care he found the animal recognized him, and testified its satisfaction by rubbing its head against him, and making every moment a little stamp with its forefoot, to the surprise of the coachman, who asked if the horse was not an old acquaintance. It was—it was his own old charger!"

A lady, remarkable for benevolence to the brute creation, observed from her garden-gate one day a miserable horse, with its shoulder raw and bleeding, attempting to graze upon an open spot adjacent; having, by means of some bread, coaxed the poor animal to the gate, she then managed, with some assistance, to cover the wound with adhesive plaster spread upon a piece of soft leather. The man to whom the animal belonged (one of those ignorant and careless beings who are indifferent to the sufferings of any but themselves) shortly afterwards led the horse away. The next day, however, the horse made his appearance again at the gate, over which he put his head and gently neighed. On looking at him it was found that the plaster was removed, either by the animal's master, or by the rubbing of the ill-made collar in which he worked. The plaster was renewed. The third day he appeared again, requiring the same attention, which he solicited in a similar manner. After this the plaster was allowed to remain, and the horse recovered; but ever after, when it saw its benefactress, it would immediately approach her, and by voice and action testify its sense of her kindness and notice. This anecdote, the truth of which is undoubted, proves how sensible the horse is of humane treatment, and how grateful for benefits bestowed.

Kind treatment and every care are due to an animal from whose services man derives such important benefits; but too often does man forget that he has a duty to perform, not only towards his fellow-man, but towards those domestic animals which Providence has intrusted to him for his welfare.

THE APPARATUS FOR TRAINING.

The appliances used in training horses by our new system are both cheap and simple. A common rope halter, a three or four ply cotton cord about twelve feet long, and a piece of line webbing, are all the implements required in training colts.

The Rope Halter.—This should be made rather heavier and longer than those used upon broken horses, and so arranged, by tying a knot or otherwise, that it does not slip up so tightly as to pinch the animal's nose.

The Cord.—This is nothing more than a three or four ply rope or cord. The cotton cord is much the best, as it works smoothly, and is much softer than any other. This cord is not a new feature in horse-training, as impostors would have you believe, it having been used many years by various tribes of Indians, Mexicans, etc. It is mentioned in the Veterinarian of London in 1828 as used by the North American Indians in subduing their horses; hence it is known as the Indian war bridle. It has also been called the Yankee bridle, but the claim to this title is wrapped in some obscurity. The use of this simple arrangement is a powerful means of controlling horses, when properly used, otherwise it is more likely to do harm than good. To prepare the cord for use, tie a knot in each end, as seen in the engraving, then make a loop by doubling the cord and passing the knot through, as represented by the engraving.

These loops should be at such distances from the knot as will allow the cord to pass around the neck at one end and the lower jaw at the other, passing the knot through the loop from the opposite side of the loop to where it first passed through in making the lap; this brings the thickness of the cord in the center of the loop. By this means safety is secured, the cord slipping easily through, preventing the possibility of its getting fast, as it would be likely to do if passed through the loop from the same side it originally came through. The necessity of this arrangement will be seen on applying the cord. We have here two principles involved: steady pressure upon the lower jaw; second, friction in the mouth, the one stationary in the mouth, the other slipping through it. The uses of the loops will be explained in their proper places.

The Line Webbing.—Take a piece of worsted webbing, such as is used for driving-lines, divide it in two parts, one piece of sufficient length to encircle the body. Make a loop in one end large enough for the other end to pass through, so that, when adjusted, it is sufficiently long to tie. The other part of the web needs no loop. These two pieces of web are used for various purposes, which will be explained as we proceed.

BAD HABITS OF THE HORSE AND HOW TO CONTROL THEM.

Horses contract habits very easily when improperly managed, and transmit them to their offspring.

" 'Tis easier to prevent than cure."

Every one at all conversant with the secrets of the stable knows how readily habits are contracted by the horse, and the difficulty in breaking up such habits when once contracted, by the ordinary methods. Many habits of the horse, which in no way owe their origin to vice, are often as troublesome and dangerous as those which do.

Kicking in the Stable.—To break up this dangerous habit, it is only necessary to place the animal in a stall closed at the head, or against a wall, so as to allow him no opportunity of jumping into or over the manger. Tie his head short and suspend, by a cord at either end, a bag of straw, hay, corn husks, any soft material so as to strike the hocks whenever the animal kicks. The bag rebounds, striking him upon the hocks; after several repetitions the animal is observed to stand and tremble; the bag at ths point is to be pulled upon one side so that he does not see it, and when the animal gets over his excitement try and induce him to kick. If you succeed, immediately let the bag go back to its former position. Two or three kicks will again quiet him, and he trembles as at first. Remove the bag, and when his excitement abates, try and induce him to kick again. By repeating this a few times the animal is thoroughly broken of the habit. Such horses are often broken of the habit of kicking in harness, as well as the stable, by the same means.

Kicking Against the Stall.—Kicking against the side of the stall is a serious evil. Capped hocks and callous enlargements are frequently consequences of this habit; mares more frequently than geldings are subject to this vice. Particularly is this the case when placed beside other horses. Removal to a box stall, and left there unhaltered, will frequently break up the habit. When no such conveniences exist, a strap should be buckled around the leg above the hock, to which a club one and a half and two inches thick, and ten or twelve inches long.

covered with a woolen cloth, or other soft material, so as not to hurt the animal, should be attached in such a manner as to hang loosely against the shank bone; with this appendage the moment the animal kicks, this club punishes it by coming sharply in contact with the leg, but does not bruise it. The animal soon learns that by keeping the leg still he escapes the punishment which follows every effort to kick.

Kicking While Harnessing.—This habit is acquired by bad management in the early training of the horse; rough handling, throwing the harness too quickly upon its back before it becomes thoroughly accustomed to its feel, are sufficient causes to produce this habit in the colt of a highly nervous temperament. The more quietly you go about such an animal, the more readily and willingly will he yield obedience to your desires. To break up this habit the cord is called into requisition; put the small loop over the under jaw, take your position upon the near side, opposite the shoulder, pass the cord over the neck from the off side, and carry it through the loop around the under jaw; now draw it up tightly and take a half-hitch, so as to keep the head in a confined position (represented in engraving page 456), keep the cord in your hand, so in case of the animal rearing you can slip the hitch and let the head loose. You should then give him a few quick jerks; this diverts his attention; you now quietly take up the harness in your hands, and as quietly approach, and put it upon him. Should he attempt to kick, slip the loop as before, and give him a few more sharp pulls upon the cord; this disconcerts him. Repeat this lesson a few times, and he will soon learn to stand quiet while you are harnessing him.

Kicking While Grooming.—Horses of a high nervous temperament are frequently addicted to this habit. This, like kicking in harness, is brought on by careless or rough handling. Here, too, the cord is a powerful instrument of control. Having secured the head, use the brush and currycomb in the most gentle manner for several days, particularly about such parts as he manifests the most tenderness.

Kicking in Single Harness.—Previous to putting the animal in harness, take the cord, put the small loop over the under jaw, pass the rope over the neck from the off side and through the small loop upon the near side; give him a few quick pulls, which calls his attention to you. Put the harness upon him, having a ring or loop upon the top of the bridle and a ring secured to the back strap, about six inches from the crupper. You now take a small bit, attach to either ring a strong leathern strap about half an inch wide, pass these straps up over the face to the ring in the bridle, down through the terrots in the saddle, and back through the ring to the back strap, then bring them down at right angles, across the quarters and secure them to the shafts on either side, in such a manner as not to interfere with the animal in traveling. With this arrangement properly adjusted, the moment the horse attempts to kick, the strap is drawn tight over the quarters, at the same time it jerks up the head forcibly, punishing the animal at each attempt to kick.

Kicking in Double Harness.—First use the cord upon the animal until he will yield his head on the slightest pull upon the cord; put on a halter, which should be a good strong leather one, having a strong lead, and ring F (see engraving on page 460), so adjusted as to slip under the girth. Have two strong traps with rings, on the plan of a dog collar. These are to be buckled around the leg above the hocks, D, D, a strong leathern strap fastened to the rings D, passing through the ring F, well secured, so as to be tense when the animal is standing square: now check him up, and he is ready to hitch up for the start. This arrangement does not interfere materially with his traveling, yet it reproves him whenever he attempts to kick, and he soon gives up the habit.

Kicking. While Shoeing.—This, like most other habits, is brought on by bad management. The colt, upon first entering the shoeing shop, should be used with the greatest gentleness and kindness. Any deviation from this rule often causes the colt to resist all efforts to shoe it. Particularly is this the case with the hind feet. The habit once established requires the utmost care and perseverance to overcome the evil. Ordinary cases of resistance while shoeing may be brought to terms by the use of the cord alone. To do this, put the small loop over the under jaw, pass it over the neck, and through the loop upon the opposite side, draw the cord tight, and take a half-hitch; you will then take up the foot. Should he resist, slip the hitch, and give him a few quick jerks upon the cord, and then renew the hitch. If he still refuses to let you have the foot, repeat the operation. If he then resists, put a collar around his neck, slip the long web through the collar, carrying it back and around the fetlock of the foot you wish to handle, bring it back through the collar, holding the end in your right hand; now pull up the foot and hold it until he ceases to resist; then take the web in your hand close to the foot and pull the foot in different directions, until he ceases to resist your efforts; then caress him. Recollect, gentleness and kindness go a great way in gaining the confidence of the animal. When he gives you the foot readily, take a hammer and tap upon it very gently. If he resists, jerk him sharply a few times with the cord; if he still resists, remove the long web, then take a short hold upon the halter with your left hand, and with a quick motion catch the tail with the right hand, and swing him around a few times, by quickly bringing the head towards you. This so disconcerts him that he usually yields the foot without further resistance. For safety it is always better to put the web on again for one or two handlings. Properly managed you will seldom fail in breaking up this habit in from four to six days.

Horses Ugly to Shoe in Front.—Take the short web, put it on the foot (at the fetlock) you wish to handle, pass it over the back from the opposite side; now pull the foot up and hold it there until the animal ceases his efforts to get it away, then tap lightly with a hammer upon the foot, increasing the force of the blow gradually, until he will allow you to strike upon the foot as hard as may be necessary; then let the foot down, pick it up with the hand; if he resist, draw it up again with the web; and so repeat until he yields it readily and willingly. Usually the animal submits his foot in a very short time, unless he becomes excited by rough usage.

Striking.—Some horses have an ugly practice of striking with their front feet. To break up this habit take the cord, put the small end in the mouth, and jerk him from one side to the other; he will try to strike you, but he fails to do so if you give him sufficient length of cord; he soon finds he is overmatched, and yields to you readily. By using the long foot-strap or web, placed around the near fore-foot, then passed under the girth and carried back, having an assistant at the animal's head to lead him; as soon as he steps pull up the foot, let it drop and pull it up again at the next effort to step or strike. This teaches him that he cannot use the foot as he would like, and he ceases to make the effort.

Balking.—This is the most aggravating of all the habits to which the horse is subject; it tries the patience of man to the utmost; yet, by patience and perseverance, with proper management, even this habit can be broken up. It is rarely we find a balky horse which is not a good one. They are usually very hardy, high-spirited, quick of comprehension, and of a strong nervous temperament. They resist because we have failed to make them understand what we require of them, or it may occur from overloading, sore shoulders, or working until tired out. Particularly is this the case with young animals. To whip under such circumstances only excites them to more determined resistance.

On the first attempt of your horse to balk, get out of the wagon, pat him upon the neck, examine the harness carefully, first upon one side then upon the other, speaking encouragingly to the animal while doing so; then jump in the wagon and give the word to go: generally he will obey; if he refuses to do so, take him out of the shafts, put up the traces so that they do not drag upon the ground, then take him by the head and tail, reel him until he is almost ready to fall, then hook him up again, and give him the word to go. This rarely fails; it takes that sullen spirit out of them, and they start at the word. I have failed but once in handling balky horses, though I have handled a large number of them. By repeating the same operation every day for a week, usually breaks up this most perplexing habit thoroughly and permanently.

Another method which often proves successful, is to tie the tail of the horse fast to the shaft-bar, unloose the traces, securing them so that they will not get under his feet. Now start him up; as soon as he finds his tail fast he will pull the wagon by that appendage; repeating this a few times will often cure the habit.

Another method still will sometimes prove successful; instead of tying the tail to the shaft-bar, take it between the hing-legs, having a cord secured to the end, and tie it to the saddle-girth; this will often answer the same purpose.

A very simple method which the writer has tried many times, with uniform success, is to tie a piece of cord rather tightly around the horse's ear, close to the head. He will start at once, and a few applications have been known to break up the habit entirely.

Shying Horses.—Those who are in the habit of riding or driving along frequented roads, or through thickly populated cities, can best estimate the inconvenience, annoyance and constant apprehension occasioned by a shying horse. While traveling along with an air of the greatest unconcern, all in an instant, planting himself in an attitude of affright, he comes to a dead stop, or flies the road. Of the sensation of the animal at such a time, we will not venture a description, but we know by experience what those of the driver or rider are. Shying in horses is no doubt the offspring of fear. Fear is the emotion excited by suspicion, apprehension, appearance or approach of danger. This may be denominated native timidity, giving rise to that kind of shyness with which colts, and young animals generally, are endowed. There is another kind of shyness which we may denominate acquired. To illustrate, a colt is naturally shy at any object of imposing appearance, either novel or strange to him. On the other hand, he beholds an object that is familiar to him, which he associates with some former suffering. We do not mean to assert that these manifestations of fear are alike, further than that they arise from the impressions made upon the brain, a dread or consciousness of danger, in the one case acquired, in the other congenital. Shyness may be attributed to a third cause, imperfect vision. A horse whose eyesight is imperfect is apt to shy at objects in consequence of not seeing them properly. The disposition to shy arising from either of the above causes, is often increased by the acts of the driver; for instance (a very common one), a man is driving a young horse upon the road, he meets an object of fear to the animal, and, as he approaches it, starts suddenly out of the road; his driver instantly commences a round of castigation with the whip, in which he persists until the horse as well as himself have lost their temper, and then, while one whips, the other jumps, plunges, frets, etc. The next object of fear the animal meets recalls the whipping previously inflicted upon him, and associates it with the object he fears; shies and starts with even more alarm than before, sometimes attempting to run away.

Gentleness and persuasion are the best means of breaking up this habit; let the animal stand and look at the object he fears, speak to him encouragingly, and gradually he will approach it. After he has passed it, turn him around, passing the object slowly several times, and his fear vanishes. By thus gently managing him, he soon places confidence in you, and a gentle word from the driver will induce him to move on by the object. It is an old saying, that the most effectual way to make a cowardly dog fight is to put him in front of his antagonist, in such a way that he cannot retreat; but we never heard any one recommend that he be whipped at the same time; yet we whip a horse for being afraid to do that which we desire him to do. Reason and experience both forbid the practice. It is our duty to act mercifully towards an animal so noble, so beautiful, and so useful to man. Contemptible indeed is that being who disregards the plaintive murmurs and ineffectual resistance of the poor beast which chance has thrown into his possession.

"Weaving."—This is an unsightly habit, but not of so much consequence as either of the foregoing. It consists in the animal moving his head and fore-quarters in quick succession from one side of the stall to the other like the action of a weaver's shuttle, or like the hyena in his cage. The animal stands with his fore-feet wide apart, hence the motion of the animal throws the weight of its body alternately upon the inside of each forefoot. The effect of this habit is to turn the inside quarter of the feet downwards and inwards at the heel, forming, as it were, a kind of club-foot. This habit indicates a restless disposition, expressing impatience at being tied up.

To break up the habit, it is only necessary to turn the animal loose into a box-stall.

Cribbing.—This is a very disagreeable habit, to say the least, but not so serious as it is often represented. The effects of an inveterate crib-bitting horse are plainly perceptible upon the incisor (nippers) teeth. The cribbing muzzle is the best means of breaking up the habit.

Biting.—This is a hateful habit, or, more properly, a vice of the worst kind. It is sometimes acquired from foolishly teasing the animal in the stable by mischievous boys. Love of mischief is a propensity too easily acquired, and often becomes a confirmed vice; particularly is this the case with biting horses. One of our greatest horse trainers had a recent experience which he thus relates: "Last September (1888) my advice was asked regarding a young stallion which had always been known as a remarkably good dispositioned animal, but some four or five months previous some boys amused themselves by teasing him. He soon acquired the habit of biting, and almost simultaneously, that of striking. Regarding the former vice—one of the most dangerous and the most difficult of all vices to break up—I advised castration; the owner approving, I operated upon him on the spot. Instead of curing the habit, he from this time became notoriously vicious, two men narrowly escaping with their lives from the infuriated animal. He finally became so confirmed in his vicious propensities, it was worth a man's life to approach him. The owner, whose name I omit by request, called upon me to handle this animal, which I did early last month (February). My efforts were attended with entire success. I first drew his head down close to the manger from an opening in the partition, having his head well secured. The stable-door was thrown open. I then approached his head cautiously, and put my rope halter upon him. I now tied a knot in his tail, slipped the halter lead through the hair above the knot, drew the lead up as far as possible, so as to draw the head to one side, and tied the halter lead by a half-hitch to the tail; this prevented the animal going in a straight line, and enabled me to keep out of his way. I now slipped the head halter, previously upon him, and drove him out of the stable. The moment he gained the yard I was after him, tickling him upon the hind-legs with a whip. This set him wild with rage, and caused him to move in a circular direction quite rapidly. I kept up this action until he began to stagger; I quickly caught the halter at the head to prevent his falling, and, before he had time to recover himself, I tightened the halter so as to bring the head and tail nearer together. I again started him, he reeled more rapidly and came near falling; I caught the end of the halter, slipped the hitch, and before he had time to recover, I had the small end of the cord nicely adjusted in his mouth. I then commenced to pull him right and left, and in a few minutes he was as quiet as a lamb, following me readily in any direction. He was handled by the owner in the same manner for several days. I recently heard from him; he remained perfectly tractable."

Running Away.—Some horses, of an excitable or headstrong disposition, will make frequent efforts to get away with their drivers, and when they once succeed are very apt to try it over again. Such animals must be trained upon the mouth. To do this effectually, take the cord, using the large loop, over the neck, placing the cord in the mouth, and back through the loop. You now pull quickly and sharply upon the cord, this sets the horse back, and causes the mouth to become tender. You then go behind him, pulling quick upon the cord. Handle him several times in this way before putting him in harness; he soon yields promptly to the slightest pull upon the cord. You may now harness him up; and, as a matter of safety, put the long web around the near foot, and give it in charge of an assistant; let him take the end of it into the buggy. With him, you start on your journey; if the animal attempts to run, pull upon the lines, and he will generally come down to his usual gait. Should he not obey this gentle warning, let your assistant take up his foot by pulling the web. This throws him upon three feet, and prevents his running. Another method, more convenient and equally effectual, is the apparatus used for kicking horses, with this difference, instead of fastening the ring which passes under the girth to the halter, secure it to the collar. With this arrangement upon him, a horse cannot run. It is not necessary to have the straps as heavy as for a kicking horse.

Refusing to Stand While Getting Into a Carriage.—This habit is very easily broken up. Use the cord upon the mouth, have it long enough to hold in your hand when seated in the vehicle; while you are entering the carriage, if the horse starts, jerk lightly upon the cord; if he does not obey, bring him back forcibly by a quick, strong jerk on the cord. This soon teaches him to stand until you are ready for him to start.

Hard Pullers or Luggers on the Bit.—To break up this habit, use the cord in the same manner as upon a runaway horse, or have a pair of straps about twelve inches long, with a ring at one end and a buckle at the other; pass these straps through the ring of the bit on either side, carry them up on the side of the face, and buckle to the head-piece of the bridle, which must be a strong one; buckle the lines to the rings on these straps, instead of the rings in the bit. This forms a gag, similar to the French twitch gag, and is a powerful means of controlling the mouth of a hard-pulling horse.

Ugly to Bridle.—Some horses are ugly to bridle from having been knocked or roughly handled about the head. Horses are occasionally troubled with sore ears, or have some tenderness about the mouth or head. Such animals refuse to be bridled from fear of being hurt. Nothing but kindness and careful handling will accomplish our purpose in such cases. Where the habit arises from previous injury or ugliness of disposition, take the cord, put the small end into the mouth, draw it tightly, and take a half-hitch. This confines the head, preventing the animal from raising it. In this position, the horse will allow you to put on and take off the bridle at pleasure. After putting it on and removing it several times, loosen up the cord, and repeat the bridling; every time the animal resists, draw the cord tightly; on the contrary, when he yields, caress him; you thus gain his confidence.

Lolling the Tongue.—Some horses have a habit of carrying the tongue out of one side of the mouth. This is generally confined to narrow-jawed horses, the space between the molar teeth being too narrow to contain the tongue in the mouth when the bit presses upon it, without coming in contact with the edges of the molar teeth, to prevent which the tongue is thrown out over the bit and hangs from one side of the mouth.

To remedy this defect, take a common bar bit, drill a hole on either side, about three-quarters of an inch from the center of the bit, from the upper surface; then take a piece of sole leather, four inches long and two inches wide, sprinkle it over with pulverized rosin and burn it into the leather—this renders it proof against the action of the saliva in the mouth; now drill two holes in the center of the leather corresponding to those in the bit, and secure both together by rivets, so that the leather extends two inches above the bit and two inches below it; this, put into the mouth, keeps the tongue down clear of the molar teeth, and prevents the animal getting it over the bit. A horse which lolls the tongue should never be driven with a snaffle bit; a bar bit is always preferable.

Hugging the Pole.—This is a great annoyance to the other horse, and he will probably learn to do the same thing, not from imitation, but from leaning inwards so as to enable him to stand against the other leaning on him. I have seen a pair of horses thus going, each leaning on the other, rendering it extremely dangerous in frosty weather, or where the road from any cause may be slippery.

This habit may be broken up by securing a piece of sole leather to the pole upon the side where the animal leans, having a number of tacks driven through it in such a manner as to protrude from the leather towards the horse. The moment he attempts to hug the pole, the tacks prick him, and he leaves it in a moment and takes his proper position. He makes but few efforts after the first punishment; a few day's driving in this manner usually cures him of the habit.

Halter Pulling.—This is a bad habit, often contracted by bad management on the part of those having the care of young animals. However, the habit may be easily broken up by the exercise of a little care and patience. For this purpose we use an ordinary rope halter, with a lead long enough to pass through the halter-ring, then back between the fore-legs and under a surcingle, and tie with a slip-knot to one of the hind feet; be careful that the halter ring is strong enough to resist the pull; now put him back, and as he pulls, the halter draws both ways, upon the head and on the hind foot; he rarely makes more than two or three attempts to pull back. You may now approach him, and try your best to set him back, whip him over the nose, throw your hat in his face, a buffalo, or any other object which he may fear, and all will fail to set him back; repeat this a few times, and he will give up the habit. When in harness it is not safe to hitch him thus, as it gives him an opportunity to pull himself down; it is, therefore, better to tie the halter around the body, back of the shoulders, instead of tying it to the foot; if he pulls now, he pulls against his fore arms, but it does not take him off his feet. Another plan is to tie a knot in the tail so that it will not slip, then divide the hairs in the middle above the knot, and pass the end of the halter through the opening and tie it, so that when he pulls it brings the tail between the hind legs; thus fixed he pulls upon his head and tail. Either of these plans will effectually break up the habit.

FEAR AND MONOMANIA IN HORSES.

Some horses are naturally far more timid than others, and take alarm at objects which in others produce no fear. We have seen horses dreadfully agitated during a thunder-storm; while, on the contrary, we have observed some apparently indifferent to the flashes and roar. In cases where horses are in stables on fire fear appears to paralyze their powers, so that it is very difficult to rescue them, unless they be first blindfolded, which should always be done.

Fear of certain particular objects often becomes so marked, and is so unaccountable, that it must be regarded as a sort of monomania. The same remark applies to certain antipathies that have been known to exist, without any apparent exciting cause. The following well-authenticated instances of such cases will be of interest in this connection:

During the late rebellion an officer in an Ohio regiment possessed a beautiful, and in other respects a most serviceable mare, but which one peculiarly rendered at times exceedingly dangerous for the saddle; she had a decided aversion for paper, which she immediately recognized the moment she saw it. The effect produced by the sight or sound of it was so prompt and so violent, that, in many cases, she unhorsed her rider; and in one case, his foot being entangled in the stirrup, she dragged him a considerable way over a stony road. In other respects, this mare had not the slightest fear of objects that would terrify most horses. She regarded not the music of the band, the whistling of the balls, the roaring of the cannon, the fire of the bivouacs, or the glittering of arms. The confusion and noise of an engagement made no impression upon her; the sight of no other white object affected her; no other sound was regarded; the view or the rustling of paper alone aroused her to madness.

Another case relates to a mare which is now owned by a gentleman residing in Crawford County, Pennsylvania: She is perfectly manageable, and betrays no antipathy to the human being nor to other animals, nor to horses, except those of a light gray color; but the moment she sees a gray horse, she rushes upon it and attacks it with the greatest fury. It is the same at all times and everywhere. She is all that could be wished on the road, under the saddle, and in the stable; but such is her hatred towards gray or white horses, that it is dangerous to place them in the same stable with her at whatever distance. If she once catches a glimpse of one, whether horse or mare, she rests not until she rushes upon it with the greatest fury, and bites it in a thousand places. She generally, however, seizes the animal by the head or throat and holds it so fast that she would suffocate it if it were not promptly released from her bite. No other white body appears to make the least impression on her.

Another mare, which was owned by one of Sheridan's troopers, feared all white inanimate obejcts, such as white mantles or cloaks, and particularly white plumes. When any of these white bodies, and especially in motion, were suddenly perceived, if they were of any magnitude and their motion was rapid, she was in a dreadful fright, and strove to escape; but if they were of no great size, and moved more gently, she rushed furiously upon them, struck at them with her fore feet, and endeavored to tear them with her teeth. No other colors produced the slightest effect upon her, nor did the appearance, however sudden, of white horses or dogs of the same color;

but if a white plume waved, or a white sheet of paper floated by her, her fear or rage was ungovernable.

These cases must be regarded as instances of true monomania. It is remarkable that in each instance the subject of this singular frenzy was a mare. Some animals are very much alarmed at the sight of a buffalo-robe, an umbrella, etc. To break up these habits requires more care than is usually required for other habits.

The method of treatment consists in enforcing a closer acquaintance with the object feared, thus gradually diminishing, and finally extinguishing, the dread which primarily exists. Take the cord, put the small loop in the mouth, place the object of fear at a distance. Lead the animal as near it as possible and have an assistant to raise the object off the ground; if the animal attempts to get away from it, jerk him sharply from side to side a few times; then have your assistant approach very slowly with the object of fear, and each time the animal flies from it, jerk him as before, and so repeat until he will allow you to approach near enough to rub him on the nose. If it be a buffalo-robe, stroke him upon the neck, gradually put it on his back, take it off and put it on again; repeat until he stands perfectly quiet. Now approach him from another direction; if he starts up again as at first, jerk him in the same manner, and repeat every day until he will allow you to approach him from any direction. A week or ten days is sufficient to break up the habit thoroughly, if properly managed.

Another very good method is using the halter as arranged for halter pulling. Having the animal ready, take the buffalo-robe on your arm, approach as near as possible without causing the horse to pull back, stand a moment, and when the animal gets over the temporary excitement, gradually approach it; the horse now pulls upon the halter, and comes back to his proper place; in five minutes, generally, he will stand and allow you to put the buffalo on him in any way you please. Occasionally we find a case that does not yield readily. Under such circumstances, the cord, small end, should be applied in addition to the halter. Now approach him gradually, if he does not stand quietly, give him a quick, sharp pull upon the cord. Take the cord off, leaving the halter upon him; lay the buffalo on the floor before the animal, and leave him to examine it for an hour or two; now hang it over the back part of the manger, and leave him again in the same manner; then hang it up in the entry before him, so that he can view it at a short distance, then change its position, hang it up behind him; finally you may put it over his back; and secure it with a surcingle. By changing it in this manner he becomes familiar with its appearance in any position. A horse will often see an object in one position and not notice it; but place the same object in a different position, and the animal becomes alarmed. One day usually is sufficient to break up this habit, completely and thoroughly.

BREAKING AND TRAINING OF COLTS.

Haltering.—To do this without the colt offering resistance, it is necessary to drive him into a cow-stall or other convenient place. You will now (with your hand if you can reach him, otherwise with a stick of sufficient length) touch him gently upon the quarter; this will cause him to start up, and perhaps to turn around in the stall. Do not attempt to prevent his doing so, or you increase his excitement, which at all times should be carefully avoided. You will then repeat the operation, and in a few minutes he will stand quietly and allow you to stroke him with your hand, or stick; gradually pass the hand or stick up over his back, as he will bear it, until you reach his head; if he attempts to get away, do not try to prevent his doing so, as you will fail in the attempt. As soon as he will allow you to stroke his head, take up an ordinary rope halter, such as are used upon colts, pull out the lead so as to form a good sized loop, place it on the end of a stick, and hold it towards him; let him smell it, and, as he does so, let his nose pass through the loop; raise the upper part of the halter over his head, then turn the stick and the halter will fall back of the colt's ears. Slip up the lead and you have him fast; now place the lead over his neck and secure it by a slip-knot, so as to keep him from treading on it. Open the stall-door and let him go out. Now drive him into a carriage-house, or some other suitable place, not more than twenty-five or thirty feet square; you then approach him; he runs to a corner; take a pole six or eight feet long, and commence as before by touching him on the quarter; and as the pole approaches the neck, close up gradually until you can put your hand upon him; you will then dispense with the pole, slip the knot in the halter, and remove the lead from his neck.

You now have one end of the halter, the colt the other; you want to teach him to lead. You take your position a little quartering from his body, and nearly opposite his shoulder, you say, "Come here, sir;" your colt pays no attention to your command, because he does not understand you; give the halter a quick, sharp pull, which brings the colt towards you. The instant you pull, let the halter slack—this prevents him from pulling back; if you keep your lead tight, he learns that he is fast, and he will pull in spite of all your efforts to prevent his doing so; repeat this operation several times, always using the words "Come here." Your colt will soon learn to follow you in the one direction. You then go to the opposite side and teach him to follow in the same manner; he must be handled from both sides, or he will obey but one. He now follows to the right or left. You want him to go forwards; take your position a little to one side, but slightly in advance of his head; give your halter a sharp, quick pull, and as your colt steps forward, stop and caress him; repeat this a few times, and he will follow you in any direction.

Hitching the Colt in the Stable.—Lead him into ordinary stall four and a half feet wide, having previously fitted a movable bar at the back of the stall about three feet and a half from the floor, or, if more convenient, a good strong rope, well secured, will answer the purpose—let it be about the same distance from the floor. After leading the colt into the stall, put up this bar or rope, and then tie the colt to the manger-ring; if you tie him first he will in all probability run back before you can have the bar or rope secured in their place; and then the halter gives way, and you have taught the colt the first lesson in halter-pulling, which under all circumstances should be carefully avoided. In taking the colt out of the stable the same precaution must be used. Untie the halter before removing the bar or rope. Continue this precaution for about ten days or two weeks, and by that time, as a general rule, the colt will stand hitched anywhere.

Training Colts to Harness.—To break a colt successfully, requires a man who has inexhaustible patience, great presence of mind, strong nerve, etc.; in a word, a man who can control himself can train a horse to harness so as to prevent his contracting any bad habits. With such indispensable attributes and proper appliances a man of ordinary intelligence can train a horse to harness without accident to the animal, himself, or others. Always train a colt with an open bridle, so that he may see exactly what you are doing; using the blind bridle prevents the animal from seeing your movements, and unless you use great care and judgment, you are apt to alarm the colt from the least misplaced movement. Let a man recollect how surprised, and in some cases alarmed, he feels on anything touching him behind. The same is the case with the horse where he does not see the object. We may say it was only the end of the trace that touched him; how is he to know this if he does not see it? A man standing in the street would turn as quickly round if a harmless sheep touched him, as if it were some more formidable animal. We must, therefore, be careful not to alarm or confuse the horse. Do everything in the most gentle and persuasive manner; if you do anything which frightens your colt, he never forgets it. Take time, and teach each point in training thoroughly; remember, that which is done hurriedly, is done badly.

Harnessing.—Horses, whether young or old, sometimes have an aversion to going in harness; such animals show their unwillingness by kicking, balking, rearing, running back, or, perhaps, running away. To prevent such habits being developed, take the colt, after being thoroughly halter-broken, by the head and tail, reel him a few times, and you can put the harness upon him; by this means you disconcert him, he will not then resist you; place him in the stable with the harness upon him, and leave him there a few hours, so that he may become accustomed to it. Then bring him out, take the lines behind him, having an assistant at his head, and teach him thoroughly the use of the reins, turning him to the right and to the left, until he will obey the slightest pull upon the reins; after having him so that he will start at the word, turn to the right or to the left, by a pull upon the line; he is ready for the word "Whoa!"

Training to Stop.—This is the most important word used in horse-training; it is our safeguard in case of accident; the animal, therefore, should learn its meaning thoroughly. To prevent confusion in his mind, the word should never be used out of its proper place. If we approach a horse standing quietly in the stable, we should never use the word "whoa," though it is very generally used on such occasions. Use instead the words "Get over," "Go over,'" "Quietly," or any other word you please, to make the animal aware of your presence; but under no circumstances use the word "whoa," except when the animal is in motion, and you want him to stop. In order to properly teach him the meaning of the word "whoa," put the long web around the near fore foot, pass it under the girth, and as the animal walks along, pull up the foot, at the same time say "whoa;" by repeating this, you will soon see him raise the foot when the word is given, even though the web be not pulled upon. Horses thus trained are safe in case a rein or bit should break, as they will generally stop at the word, under almost any circumstances. A friend of mine trained his horse to stop by simply catching hold of the tail.

Learning to Back.—Put the cord upon the horse, using the small loop; draw it up with a steady pull—this brings the animal's nose towards his body. Keep a firm hold upon the cord until he steps back a little, using at the same time the word "Back," then caress him; you thus teach him that he has done exactly what you wished him to do; then repeat, caressing him each time he obeys. Care must be used not to excite the colt too much or you will have him resist you; therefore, do not continue your lesson more than five or ten minutes at any one time; on repeating the lesson a few hours later, the animal will usually yield and back freely. Now try him with the line alone; if he obeys, you may remove the cord altogether. Occasionally, we find an animal which will not yield to this treatment; we then take the short web, put it around the near fore foot, carry it over the back from the off-side, have a bridle upon the animal, take hold of it close to the bit with your left hand on the near side, having the web in the right hand, with which to bring up the near fore foot, holding it up by the web, now press backwards upon the bit; this brings the body back, and as it does so, let the foot fall; the toe strikes the ground some fifteen or eighteen inches behind the opposite foot, and as it does so, the off-foot comes back to the same point. By repeating this lesson, we teach any horse to back, however obstinate he may be. I have never known a single instance where it failed.

Hitching to the Wagon.—In hitching up a colt to the wagon for the first time, it is always better that you put him alongside of a steady, well-broken horse; if you have no opportunity of doing this, let him become perfectly familiar with the wagon before hitching him up single; lead him up to the wagon in the shafts of which you intend putting him; let him examine it carefully; raise the shafts up and down in his presence, so as to get him familiar with the motion; if it be a top-buggy, raise and lower the top; should he behave badly, put the cord upon him, using the small end; jerk him every time he offers any resistance. Now lead him in front of the wagon; pull it towards him; should he start, jerk him again, and so repeat until you can pull the wagon up to him. Now raise the shafts and let them down quietly over his back; repeat this operation until he will remain perfectly quiet. Now lead him up, pulling the wagon behind him. When he will bear this nicely, you may hook him fast to the wagon, first putting the long web upon the near front foot; pass it under the girth, and give it to an assistant; get into the wagon with your assistant, having previously instructed him how to manage the web. Have a second assistant to lead the animal a short distance; if he behaves well let him go. With this system, one-half hour's handling every day for a week is sufficient to break thoroughly to harness the wildest colt.

Bitting the Colt.—The ordinary process of bitting colts is too well known to horsemen generally to need any description at my hands. A cheap and easy method of bitting colts, if properly managed, is by means of the cord. To arch the neck and bring the nose in where you want it, take the cord, using the small loop over the under jaw, pass the cord over the neck from the off-side, and through the loop on the near side. Now take your position at the near shoulder, press lightly upon the cord; should the colt resist, let it loose for a moment, then press upon it again, and as he yields caress him; by repeating this a few times, say two or three times a day as opportunity offers, you will find he soon yields his head nicely. Use the utmost care on first applying it, or you will excite the colt to resistance. When once he learns that he can resist successfully he will try it over again. Do not continue the use of the cord more than about ten minutes at a time. Now change the end of the cord, taking the large loop; pass it over the neck, put the cord through the mouth from the off side, back through the loop on the near side, take your position in front of the animal and pull lightly upon the cord; this sets his head up as high as you want to put it. By repeating this lesson, the colt soon learns to get up his head on the slightest touch upon the rein.

To Add Style.—It will be observed in using the cord for the purpose of bitting the colt, that the small loop brings the chin in towards the body, at the same time beautifully arching the neck. The large loop having directly the opposite effect, by putting the head up in any position desired. This arrangement applied to older horses, with a bad carriage of the head, adds at least twenty per cent to their appearance, and often more than that amount to their price.

Mounting the Colt.—Take your position on the near side of the colt, stand with your right side next to the animal, take hold of the mane with your left hand, place the toe of the left foot in the stirrup, placing the right hand upon the back part of the saddle; now raise yourself up with a quick spring, passing the right leg over the saddle, and take your seat; a very little practice will enable you to perform this feat with ease and in a graceful manner. To place your body fronting the side of the animal is a very awkward position, and one rendering it much more difficult to mount the animal. Should the colt not stand well, a few jerks with the cord will bring him to his senses, and make him stand until you are seated.

Riding the Colt.—In riding the colt for the first time, a common riding bridle without martingale is to be preferred. Fasten the short web around the off fore foot, take a short hold upon it with the right hand while you sit upon his back, holding the bridle-rein in the left hand; should he act badly, pull up the off foot with the web, at the same time pat him gently upon the neck with the left hand; there is no danger in taking up the foot in this manner, provided you do not pull upon the reins at the same time. Let down the foot in a few minutes, and turn the colt around several times by pulling upon the off rein, then reverse the action by pulling upon the near rein; now turn him to the right, then to the left, several times. Should he still be restive, take up the foot again, and so repeat until he performs his part properly—then do not fail to caress him. Make the first lesson a short one, and gradually increase it from time to time as occasion may require. This method rarely requires the whip, and is certainly attended with less danger than the old and tedious one of riding a colt.

WHIP TRAINING.

How to Train a Horse to Drive Without Bit or Line.—Whip training illustrates the beauty and power of our modern system of horse education. To train a horse thoroughly to drive without bit or line under the whip, requires from four to six weeks' time; it requires a man of strong nerve and self-control to be a successful trainer in this particular branch. Such a feat as driving a horse without bit or line cannot be accomplished by any other system known to man.

Having selected a horse with a moderate share of intelligence, the next thing is to secure a suitable place for training. An inclosure twenty-five or thirty feet square is required. If you have it smaller, and your horse should be disposed to kick, you will be in danger; if larger, it gives the animal too much room to get away from the whip. It is better that you go in with the horse alone, as then the animal will have no other object to take his attention.

Turn him loose without bridle or halter in the inclosure; take your position in the center, holding in your right hand a straight whip nine or ten feet long; you crack the whip as you take your position; this alarms the horse and causes him to run into one corner of the inclosure; crack it several times that he may learn that you do not intend to hurt him; now commence tapping him lightly upon the near shoulder, but not to hurt him; if a nervy fellow, he is all excitement for a few minutes; continue the tapping until he turns his head towards you, which he will do in a short time. The moment he turns it, however slight it may be, cease the whipping; as soon as he turns it away again repeat the tapping with the whip; in a few minutes he again turns his head towards you; stop the motion of the whip; as he turns away repeat the whip-tapping as before; in a very short time he turns around so that you can approach him; now gently caress him; move away and again approach him; should he turn away repeat the whipping: by this means you teach him to come to you on the near side.

After he has learned this thoroughly, which requires about one week's training, half an hour each day, then proceed in the same manner upon the off side; as soon as he obeys the motion of the whip upon this side, take your position behind him, and turn him by the motion of the whip, to the right or to the left; as soon as he performs nicely, put the harness upon him, take the lines behind him, and, as you give him the word to go forward, throw the whip down by his right side without touching him. At the same time have the long web around the near fore foot, and give it to an assistant; you want him to stop, give him the word whoa; at the same time your assistant pulls up the foot, turn the whip in a horizontal position above your head—in this way you teach him that the whip in that position means whoa.

By repeating these motions, he learns in about four weeks to turn to the right whenever the whip is thrown towards the right shoulder; to the left when thrown towards the left shoulder; to go ahead when thrown down by the right side; and to stop when held in a horizontal position.

You now want to teach him to back; having previously instructed him according to our rule, put the cord, using the small loop, in his mouth; take the cord in your hand with the reins, pull upon the reins, and say "Back," at the same time keep the whip directly over the animal's back, giving it an upward and downward motion, or you may tap him gently upon the back with the whip—this is best done in a sulky. If he starts forward, set him back by pulling quickly upon the cord; repeat the operation until he will go back by the motion of the whip alone. Should he make repeated efforts to go forward, bring the whip quickly once or twice down over his nose, he will not then repeat the operation very often.

With this training, it is necessary to use an open bridle, so that the animal will see the motions of the whip.

You are now prepared to hook him up for the first drive.

Take an assistant with you; have the foot-strap or long web secured upon the near fore foot; give it in charge of your assistant; let the lines lie over the dash as a matter of precaution. Now commence operations with the whip; if the animal acts promptly, remove the foot web and begin again, having the lines over the dash as before; drive the animal in this way at least two or three weeks before removing the bit from the mouth. Your horse is now safe to drive under the whip.

Of course, it is better to use this method of whip training with young horses, and those which are naturally docile and obedient; but there are few horses so disobedient that they may not be thus controlled at any age.

How to Make a Horse Trot "Square."—Many horses show speed when they strike their gait, but do not hold it long. This, in many instances, arises from too much anxiety on the part of the driver, forcing the horse "off his feet." This is a great source of annoyance to the owners, who in many instances have built their hopes very highly upon the great speed of their favorite nag. But how often are they doomed to disappointment! The animal is beaten by those of far less speed, simply because he "breaks up" badly.

To prevent this habit in horses requires some degree of patience and good management on the part of the trainer. The apparatus used upon this occasion is a similar one to that used for kicking horses. The straps e e are the same; the halter lead, however, is not required; use instead a strap passed through the ring f, allowing the animal to move without renot too long; to this strap secure the ring f, pass the strap e e through the ring f, and buckle the straps d d above the hocks.

We are now ready to drive the horse, going off on a moderate gait, that he may become familiar with the feel of the straps before urging him. As he moves, the strap e e slips through the ring f, allowing the animal to move without restraint as long as the legs move alternately, as they do in the trot or pace; but the instant he attempts to change his gait, he then meets the check which the straps give him; he cannot move them together as he does in the run, the straps preventing both legs going back at the same time.

After he has made a few attempts to "break up" and fails, he becomes gradually more steady. We may then urge him to the top of his speed without his making any effort to go up. Drive him every day with this arrangement for three or four weeks, and by that time he will, as a general thing, trot perfectly honest and remain so.

This system applies equally well to pacers. Care must be taken to adjust the length of the straps to suit the horse's step.

TRICK HORSES.

How to Train and Control Them.—To teach horses to perform tricks requires a little more apparatus than that described in the foregoing pages. In addition to the cord and webbing we use what are known as the Rarey straps, consisting of the short strap and the long strap.

The Short Strap.—A common breeching strap is all that is necessary; it is used to strap up the foot (see engraving). Open the loop, keeping the buckle on the outside, put the loop over the foot, then raise the foot and pass the strap around the fore arm from the inside, and buckle it tight; this holds the foot up firmly.

The Long Strap.—This is used for bringing the animal to his knees, which is done by pulling up one fore foot while the other is confined by the short strap. It is a stout strap seven or eight feet in length, buckled to a strap with ring which is placed around the foot. The end of the long strap is passed under the girth or over the back for the purpose of taking up the foot when we want to bring the animal to his knees. (See engraving "Learning to Lie Down."

SOME SIMPLE TRICKS.

To Teach a Horse to Lie Down.—Take your position upon the near side; strap up the near fore foot, using the short strap; have a good strong bridle with check pieces, so as to prevent the bit from pulling through the mouth. Tie a knot in the bridle-rein over the neck, take a short hold of the bridle-rein with the left hand, the right hand holding the off rein; now press him backwards, and as you do so he comes down gently upon his near knee; let him rest awhile in that position. Whenever he attempts to jump pull him towards you, and press him back as before; after repeating this two or three times most horses will lie down; if you do not succeed, however, put on the long strap, passing it under the girth, or, what is better, over the back; take a short hold of the strap with the right hand, pull him towards you with the left hand, and as he steps pull up the right foot. This brings him upon his knees; keep him there until he lies down, then caress him, handle him gently all over, knock his feet together; pull his head up and lay it down carefully; repeat this operation several times, and he will soon learn to lie down by merely raising the near front foot or lightly tapping it with a whip.

To Sit Up.—Lay the animal down as previously directed, having a collar upon him; place a hobble or strap, with a ring in it, around each hind foot; take a pair of ordinary driving lines, pass the buckle-end through the collar back to the ring in the hobbles, and buckle them; pull the feet up towards the shoulders, and carry the lines back to the hind quarters; hold them firmly in one hand, or give them to an assistant. Have a bridle with a long rein upon the animal; take the rein in your hand, stand upon the tail, and pull upon the bridle-rein, keeping the lines firm at the same time; this brings him up in front, and prevents his getting his hind feet back far enough to rise upon them, they being drawn forward and securely held by the lines. Repeat the operation a few times—say two or three times a day—and he soon learns to lie down at the word. This is the method usually practiced upon circus horses.

To Make a Horse Bow.—Stand upon the near side, and with a pin in your right hand prick the animal lightly in the breast, and say, "Make a bow, sir;" he will soon learn to throw his head downwards; when he does so, caress him. By repeating this operation a few times he soon learns to bow by merely pointing the hand towards his breast, or, if learned, by a motion of the foot. In all cases when training horses to perform tricks, it is necessary that they should have a bridle without winkers, or else have the head bare.

To Answer Questions.—Take your position as before, and with a pin in your right hand, prick him lightly anywhere along the mane or over the withers (ask such questions as you want answered in the negative); this causes him to shake his head exactly as he will do when bothered by flies upon the neck during fly time. It was this circumstance which suggested the use of the pin to make a horse say no. By repeating this operation a few times he will shake his head by your simply raising the hand to your head as if to raise your hat; this motion of the head indicates no. Nodding the head by pricking the breast signifies yes; always ask the question before making the motion with your hand.

To Kiss You.—To teach a horse to kiss you, take a piece of apple in your hand and let the horse smell it; he will then try to get it from you. Carry it up to your mouth and hold it between your teeth; let him take it from your mouth. Repeat this a few times and use the words "Kiss me;" he soon learns that "Kiss me" means apple, and he puts his mouth to yours to take it away.

When operating privately always give it to him, and he will then obey you promptly when showing him publicly.

To Shake Hands.—Take your position in front of the horse, say "Give me your right foot," or "Shake hands;" he does not understand you; you convey the idea to him by taking a pin and gently pricking him upon the right leg; he at once lifts it up; as he does so take it in your hand and caress him; he understands by this that he has done what you wanted him to do. After repeating this a few times, put your hand towards his leg and crack the thumb and fingers; he, anticipating the prick, lifts his foot; should he fail to do so have your pin handy and use it lightly. By this means he soon learns to give you the foot at the crack of the thumb and fingers. As soon as he gives one freely, teach him in the same manner to give the other one.

To Kick With the Right or Left Foot.—Care must be taken in teaching this trick, that you have a horse not predisposed to vicious propensities, or you may make a confirmed kicker; and then you will have the habit to break up. A horse of a mild disposition may be taught to perform thus without the risk of his becoming a kicker. I have taught one of my ponies to kick when I desire him to do so, and he cannot be made to kick unless the whip is used lightly upon his hind parts.

Having selected your animal, take a pin in your right hand, prick the near hind leg with it and say, "Kick with the left foot;" the animal soon learns to obey. Then proceed with the opposite leg in the same manner. After the horse will kick with either foot by a motion of the hand without pricking him, you will stand off a short distance with a long whip and say "Kick with the left foot;" then proceed in the same manner with the right foot. By proceeding thus once a day the animal will soon learn to do his part very nicely.

Learning to Waltz.—Some horses seem to love music, and can readily be taught to waltz or dance. Use a girth around the body, upon the near side of which buckle a short strap, having a loop at one end to fasten to the ring of the bit; draw the strap through the girth buckle so as to incline the head a little to the near side; have one or two good pieces of music, and play any waltz that may be desired; at the same time turn the animal by the use of the whip lightly upon his legs; he soon learns to turn merely by a motion of the whip without touching him. After repeating this lesson once a day for three or four weeks, the strap may be removed, leaving his head free.

To Teach a Colt to Follow You.—Take the cord, using the small loop, give him a few quick pulls right and left, then take your position on one side opposite the shoulder, give a quick pull upon the cord, which brings him towards you; at the same time say, "Come here, sir;" as he obeys, caress him. Repeat this until he will come without the pull, then take your position upon the other side and proceed in the same way. You will soon have him so that he will follow in any direction.

HINTS UPON HORSE SHOEING.

A glance at the skeleton of the horse will at once serve to convince us that the animal is formed at the same time for strength, and for celerity and ease of motion. If we look at the fore limbs we shall see that the scapula, No. 3, recedes from the shoulder-joint, falling back obliquely; its upper part uniting with the spinous processes of the anterior dorsal vertebrae, No. 14, to form the withers. The shoulder-bone, No. 4, retreats, forming an angle at the elbow joint: the fore arm consists of two pieces, No. 5, the radius and ulna consolidated as one bone in the mature horse; this is followed by a double row of small bones, No. 3, the carpus or wrist bones, seven in number. These are succeeded by the metacarpus, No. 10, with two slender splint bones attached posteriorly to its upper part. To these succeed the three phalangeal bones, Nos. 11, 12 and 13. There are besides a small pair of bones situated behind the fetlock joint called sessamoides, and a small bone situated behind and between No. 12 and 13, called the navicular bone. The coffin bone, No. 13, is enclosed in the hoof, which consists of thick, firm, rounded horn, having a certain degree of expansibility; and underneath, forming a sort of sole, is a part called the frog: it is an elastic cushion, and in a healthy state prevents concussion. At each step the frog yields under the weight of the animal, and swelling out laterally expands the heels of the hoof.

This frog ought always to touch the ground; it does so naturally, and where bad shoeing prevents it, the crust of the hoof soon becomes hard, brittle and unyielding, causing a shock at every step as the animal trots the hard road. Inflammation and alteration of structure soon supervene.

The posterior limbs are modeled on a similar plan. Now from the angles which the bones of the limbs make with each other at the joints, the force of every shock as the animal trots or gallops is greatly broken; its very step is light and elastic; and this not only results from the obliquity of the bones in question, but particularly from the yielding spring of the pastern, its elasticity being provided for by a ligament which passes down the back of the cannon bone, No. 10, and along the pasterns to the coffin bone, 11, 12 and 13. Nor is the spring of the elastic frog to be here overlooked; it also contributes an important share to the easy progression of the horse, the action of whose limbs as he moves is, or ought to be, free, vigorous and springy. But alas! how often do we see the knees distorted with overtoil, and the pasterns rigid and swollen from disease!

Shoeing is generally regarded as a necessary evil; and were it not for our paved streets and turnpiked roads, this evil might in a great measure be well dispensed with. As it is, our object should be to observe as closely as possible three important rules in shoeing horses:

1st. To preserve the natural bearing of the foot.
2d. To preserve the hoof in its natural shape.
3d. To protect the foot from injury.

If we observe the foot of the unshod horse, we find the hoof has a perfectly level bearing upon the crust or wall as it rests upon the ground, as well as upon the frog, which, as previously stated, acts as an elastic cushion, preventing concussion and expanding the heels, which relieves the pressure upon the sensitive and delicate structure within the hoof, that otherwise would occur were the hoof hard and unyielding. The sole or ground surface of the foot is all that part of the foot situated between the frog and the crust or wall; this sole should not come in contact with either the ground or the shoe.

In order to preserve the level bearing of the foot, it is necessary that the shoe be made with a perfectly level surface upon the foot side, for the crust to rest upon. Beyond that point it should be beveled inwards, in order to prevent pressure upon the sole. The frog should remain untouched with the knife, except to trim off any ragged edges. The moment the substance of the frog is cut away, that moment it begins to lose its moisture, and therefore its elasticity. It becomes as hard and brittle often as the hoof itself; its function is thus destroyed, and it now acts as a foreign body, bruising the sole, causing diseases of various kinds to arise.

If we examine the feet of horses shod in the ordinary manner—and there are few others—we find in place of the shoe having a level bearing for the crust, it is beveled from without inwards, so that the foot rests upon a concave instead of a level surface. The consequence is that the heels, instead of expanding up these inclined planes, are actually pressed inwards, in consequence of the lateral pressure thus brought to bear upon them. This, as a natural result, causes contraction of the hoof sooner or later, causing a hard, brittle condition of the hoof, predisposing it to split, producing toe, quarter, or other cracks, which never occur in an elastic hoof. Corns soon follow contraction of the hoof, often producing very severe lameness, and leading to diseases of a more serious nature.

When we have a contracted foot, it is only necessary to reverse the bearing of the shoe—that is, the bearing at the heels back from the last nail-hole should be very slightly beveled outwards. This has a direct tendency to gradually facilitate the expansion of the heels.

The smith must use great caution in beveling the shoe, to give it a very little slant from the last nail hole on either side—not more than the twentieth part of an inch; otherwise more harm than good will be likely to follow its application.

Preparing the Foot For the Shoe.—This, as a mechanical operation, requires a man of good, sound judgment to properly perform his work. The growth of the hoof is about equal to its wear when the animal remains unshod, otherwise the hoof would be worn too short or become too long. Our object, then, in paring the foot, is to remove so much of the hoof as would have been worn away had not the shoe prevented such wear. Any deviation from this rule causes the feet to become unusually long, the sole thick, etc., causing the animal to stumble at almost every step. In preparing the foot for the shoe, after carefully removing any old stubs that might remain, the crust should be lowered with the rasp from the toe to the heels, the sole then should be pared—with the drawing-knife in preference to the buttress. The feet should be poulticed the night before being shod, with linseed meal; this will so soften the hoof as to enable the smith to pare the feet without difficulty. Care must be taken to remove a portion of the horn between the crust and bars, so that the heels of the crust shall be higher than the heels of the sole. The bars will simply require cleaning out, removing any loose portions without diminshing their strength. All ragged portions of the frog should be removed, but the frog must by no means be cut away merely because the smith fancies it to be too large. In weak feet very little paring ing out, removing any loose portions without diminishing their protection from injury in shoeing. No fixed rules can be laid down for paring the feet; that must be determined by the nature and condition of them at the time.

Applying the Shoe.—The shoe should be set as near the outer margin of the crust as possible; by so doing, we have the crust as the main support of the foot, as nature intended it should be. By setting the shoe back a quarter or three-eighths of an inch from the outer margin of the crust, as is often done, at least one-half of the bearing surface of the foot is destroyed. It is therefore weakened in exact proportion as it is cut away, besides greatly reducing the space for driving the nails, thus rendering them more liable to do injury by being driven too close to the sensitive structure, or by pricking the foot. The nails should be pointed with great care, in order that they may be driven with a greater degree of certainty. Eight nail holes are usually punched in the shoe; but our experience teaches us that injury is often prevented by leaving out the quarter nail upon the inside of the foot. If it should be thought necessary, it may be put in at the toe instead.

Clips Upon the Shoe.—These should not be used, as they are the frequent cause of an obscure lameness, often giving rise to much trouble. The growth of the horn being from above downwards, the clip offers an obstruction to the growth of the hoof, which cannot be overcome; hence it is turned inwards upon the soft structures of the foot. This is readily seen after death, in the hoof of a horse which has been shod several years with the clip. Removal of the cause will enable the animal to get entirely over the lameness in two or three months. Horses have been restored to perfect soundness in this way very frequently, even after a lameness of two and three years' standing. When it is thought necessary to use a clip, one of the smallest kind should be employed.

"Interfering."—Many horses are in the habit of interfering and many ingenious methods have from time to time been devised to prevent this troublesome habit. Both the hind and fore legs are subject to cutting or striking, usually about the fetlock joint. In the front feet, however, we sometimes find them striking just below the knee-joint, producing an enlargement known as a "speedy cut." We should, when this habit exists, first ascertain the cause as nearly as possible, and the part which strikes, whether the shoe or the foot. Many horses interfere only when leg-weary. Particularly is this the case with colts. Some horses strike when shod with heavy shoes, but do not do so with light ones. Others interfere from some peculiarity in the conformation of the limbs. The most successful plan of preventing this habit, is to straighten the inside of the shoe from the toe to the quarter, allowing the heel of the shoe on the inside the same inclination that it would have ordinarily applied. Two nails only should be driven on the inside of the foot with this shoe. This is an exception to our rule in applying the shoe, but it usually has the desired effect. By no means make the shoe higher on one side than the other, as it causes unequal concussion upon the limb when the animal is in motion, thereby predisposing the joints to injury. In some rare cases, widening the web of the shoe, as well as straightening it upon the inside, has the desired effect, when simply straightening fails to accomplish the purpose.

Overreaching.—Many very good horses have this troublesome habit. Young horses are more subject to overreaching than old ones; it very frequently disappears as the speed of the animal is increased. At a moderate gait the front feet do not always get out of the way in time for the hind ones as they are brought forwards, hence a collision takes place. Sometimes the heels are cut or bruised badly, and occasionally the shoes are torn from the front feet. The most successful means of preventing this habit is to make the front shoes a little lighter, which facilitates their motion, the animal lifting them up so quickly—the hind ones should be a little heavier. Trifling as this difference may appear, it is very generally successful; an ounce of iron will make a very marked difference in the movement of most animals, as much so as weight upon the back.

Shoeing Horses With Corns.—The corn should be well cut out, and then burned with a red-hot iron, muriatic acid, or butter of antimony. The shoe recommended for contracted feet should be here applied; the hoof backwards from the corn to the heel should be removed, so that no part of the hoof back from the corn have any bearing upon the shoe; by this means we prevent all concussion that otherwise would fall upon the part affected; the animal thus shod will travel sound though the corn be a bad one. Much depends upon the careful and skilful application of the shoe, independently of its being constructed on proper principles. Many horses with very bad feet are enabled to go sound for years by a combination of care and skill, while on the contrary a single shoeing done by a bungling workman would suffice to lame them. It requires considerable skill to fit a shoe properly on a bad foot, so as to save the weakest parts and economize the horn.

Keeping the Feet Moist.—When we take into consideration the unnatural condition in which the feet of the horse in a state of domestication are brought by nailing upon them the iron shoe, and standing them upon plank floors, we can readily understand why it is that the hoof so soon becomes hard, brittle, and contracted. There is no moisture absorbed by the foot from either the shoe or the plank. If we stand the horse upon the ground, it is but little better, as such floors are usually very dry, or else they are in a filthy condition in consequence of the urine which the animal has passed off, predisposing the feet to thrush, etc. In consideration of the above facts it is our duty to protect the feet by artificial means. To do this effectually, the feet should be stopped with flaxseed meal mixed with water;

that is, when the meal is mixed the soles should be packed full, say once or twice a week during the winter season, and three or four times a week during the summer season. This supplies the moisture as well as the oily substance necessary to keep the hoof in a normal condition.

SHORT POINTERS FOR HORSEMEN.

Never quarrel with your horse.

To make a fine coat, feed well, clothe warmly, sweat often and groom thoroughly.

Never let your horse know that he can successfully resist you.

Once handling a horse produces but a temporary effect.

When a colt is first hitched in a stable be sure to have a rope behind him, so that he cannot pull back and learn to be a "halter-puller."

Remember that you have no business trying to control a horse unless you can first control yourself. An unruly horse is a jewel compared to an unruly man.

Drive fast and stop often.

Never say "whoa" unless you want your horse to stop.

Never use the whip except in the process of training. A horse which has to be urged to higher speed by means of the whip is improperly educated and no credit to his trainer.

Dark stables produce blind, stumbling and shying horses.

In law, the word "warranted" applies merely to soundness; "warranted sound" has no greater significance.

If you have a horse which you want to match don't tell the dealer or he will make you pay dearly for the size and color.

To remove a horse from a burning stable, blindfold him.

If you don't intend to conquer your horse never begin training him at all.

It will pay you to keep your horse's hoofs moist and oily by stuffing them semi-weekly with linseed meal poultice.

Wet the hay for a horse with heaves.

Never bleed a horse when the membrane lining the nose presents a bluish appearance, as it denotes a debilitated condition of the system; under such circumstances the animal wants a liberal diet and strong tonic treatment.

Never drench a horse if it can be avoided, but always administer medicine in the form of ball or powder. The anatomical structure of the horse's throat renders drenching exceedingly dangerous.

Drenching is the best way of administering medicine to cattle.

To ball a horse properly, take the tongue in the left hand, bringing it out on the off-side of the mouth, then take the ball in the right hand between the thumb and first two fingers, pass it over the curve of the tongue, and let it go; do not be in too much of a hurry, or you will be likely to fail in giving it.

Never feed corn or cornmeal to horses which are not in a healthy condition.

When a horse in harness stumbles and falls, jump immediately, and hold down his head so that he may not dash it about to his own injury. If you are foolish enough to use a check-rein, loosen it, and also all other parts of the harness which are attached to the vehicle, and push the latter back until the shafts are clear of the animal; speak low and caress the horse, supporting his head, and encourage him to rise, first being sure that his legs are not tied down by any complication of straps. When he rises caress him again, and let him stand perfectly free and quiet until his fright has subsided. Never use harsh language or loud tones in a case of this kind.

An idle horse must have his food reduced in quantity—not as a punishment, but as a hygienic measure.

Bad hay is not cheap at any price.

A hard-working horse should have oats and corn; hay is good enough for an idle horse.

A horse cannot stand hard work if his food is confined to grass and hay any more than a man can carry a hod on turnips and cabbage.

Dissolve a teaspoonful of salt in a bucket of water and sprinkle the hay with the mixture. It pleases the taste and aids digestion.

Don't forget that old horses, like old men, lose their teeth and their chewing abilities; therefore, bruise the oats and corn, and chop the hay for the old nags who can't get "store teeth." You will thus aid the process of digestion, utilize all the nutriment in the food and prevent diarrhoea and the passing of undigested food.

Never give your horse warm water to drink; for cold water thereafter will give him the colic.

To put an unwarmed bit into a horse's mouth in frosty weather is rank inhumanity.

A "blind bridle" is a relic of barbarism.

A head shelter made of wire and canvas should always be used in hot weather; the addition of a wet sponge is desirable.

Never whip a horse when he shies or stumbles. Encouragement is what he needs, not rebuke.

A horse never needs a harsh or cutting bit after he is properly broken.

PUBLISHER'S MISCELLANEOUS RECIPES.

Perry's Quaker Vermifuge.—Alexandria senna, 1 lb.; pink root, 2 lbs.; white sugar, 6 lbs.; alcohol, 1 pint; carbonate potass., 3 oz.; santonin, 8 oz.; oil caraway, 1½ dr.; oil anise, 1½ dr.; water to make 1 gal. of syrup.

Swaim's Vermifuge.—Wormseed, 2 oz.; valerian, pulverized, 1½ oz.; rhubarb, 1½ oz.; pink root, 1½ oz.; white agaric, 1½ oz. Boil in sufficient water to yield 3 qts. of decoction, and add to it 30 drops oil tansy, 45 drops oil of cloves, dissolved in alcohol, 1 qt. Mix and filter.

German Worm Tea.—Manna, 1 oz.; fennel seed, ½ oz.; senna alex, ½ oz.; pink root, ½ oz.; boiling water to make 1 qt. Macerate drugs with boiling water for one or two hours, and add enough boiling water to make equivalent to that lost by evaporation. Dose—Teaspoonful to ½ oz., according to age.

Santonine Lozenges.—Santonine (fine powder), ½ Troy oz.; sugar (fine powder), 18 oz.; tragacanth (fine powder), ½ oz.; orange flower water, sufficient. Rub the powders together until they are thoroughly mixed, then with orange flower water a mass to be divided into 480 troches. Color with carmine. Each lozenge contains about half a grain of santonine. Dose—One every three hours until three or four are taken.

Aromatic Chalk Powder.—Cinnamon, in powder, 4 oz.; nutmeg, 3 oz.; saffron, 3 oz.; cloves, 1½ oz.; cardamom seed, 1 oz.; sugar, 25 oz.; prepared chalk, 11 oz. Mix them thoroughly, pass the powder through a fine sieve, and finally rub it lightly in a mortar. Keep it in a stoppered bottle. Dose—10 to 60 grains.

Dyspepsia Tablets.—Lacto-phosphate lime, 1½ dr.; lacto-phosphate magnesia, 10 gr.; lacto-phosphate iron, 5 gr.; pesin, 100 gr.; sub carb. bismuth, 100 gr.; oil menth. pip., 5 drops. Dose—One or two pills. Make into 100 compressed pills. To prevent rusting of compound pill molds: After using, wash thoroughly with water, and dry by passing cotton through the cylinder; then fill the cylinder with absorbent cotton and wrap it and the base and plunger with the same material and put away.

Gelatine Ice.—Cox's gelatine, 2 oz.; water, 6 oz.; glycerine, 14 oz.; oil of bergamot, 20 drops; oil of cloves, 10 drops; oil of bitter almonds, 5 drops. Warm the glycerine and add to it the gelatine previously dissolved in water by means of water bath. Boil down to 1 pt.; while cooling add the essential oils and pour into molds. The above is a beautiful article.

Cough Candy.—Fluid extract of seneka, 4 fl. dr.; fluid ext. of squills, 12 fl. dr.; fluit ext. of ipecac, 2 fl. dr.; tincture of tolu, 2 fl. dr.; tincture opium, camphorated, 8 fl. dr.; oil of anise seed, 5 drops; oil of wintergreen, 8 drops; oil of sassafras, 15 drops; sugar, 12 lbs. Mix the liquid ingredients together, and give them, with the sugar, to a confectioner, to be made into tablets or lozenges. This is a really fine article.

Dalby's Carminative.—Carb. magnesia, 6 oz.; carb. potassium, 2 dr.; sugar, 1 lb.; laudanum, 3 oz.; water, 5 pt.; oil caraway, 10 drops; oil fennel, 10 drops; oil peppermint, 10 drops; brandy, 4 oz.; prepared chalk, 2 oz. Mix. Strength, 1 grain of opium to the ounce.

Composition Powder.—Bayberry root bark, 3 lbs.; ginger, 1½ lbs.; capsicum, 3 oz.; cloves, 3 oz. Mix.

Camphor Ice and Glycerine.—White wax, 7½ oz.; spermaceti, 7½ oz.; pulverized camphor, 10 oz.; pure tallow, 28 oz.; olive oil, 2½ oz.; glycerine, 8 oz. Melt the white wax, spermaceti and tallow together; while warm dissolve the camphor in the mixture. Finally add the olive oil and glycerine. Stir and pour into molds.

Glycerate Tar.—Pine tar, pure, 1 oz.; carbonate magnesia, 1 oz.; glycerine, 4 oz.; alcohol, 2 oz.; aqua, 10 oz. Mix. Dissolve tar in alcohol. Reduce magnesia to powder and add tar and alcohol to magnesia. Triturate thoroughly; add glycerine and water to make 1 pint, and filter.

Clark's Blood Mixture.—Iodide of potassium, 64 gr.; chloric ether, 4 dr.; liquor potassa, 30 drops; water, 7½ oz.; burnt sugar, sufficient to color. Mix. The chloric ether here mentioned is made by dissolving one part, by volume, of chloroform, in nineteen parts, by volume, of alcohol.

Locock's Pulmonic Wafers.—Lump sugar, 2 lbs.; starch, 2 lbs.; powdered gum arabic, 1 lb. Make into a lozenge mass, with vinegar of squills, oxymel of squills, and wine of ipecac, equal parts, gently evaporated to one-sixth of their weight, with the addition of from 4 to 5 oz. of lactucarium. Divide the mass into half-inch squares, weighing about 7½ gr. each when dry.

Chapman's Copaiba Mixture.—Copaiba, 4 dr.; sweet spirit of niter, 4 dr.; powdered gum arabic, 1 dr.; powdered sugar, 1 dr.; comp. spirit of lavender, 2 dr.; tincture of opium, 1 dr.; distilled water, 4 oz. Mix. Dose—A tablespoonful three times a day.

Whaley's Dyspepsia Cure.—Nitric acid, diluted, 80 drops; fluid ext. of conium, 2 dr.; syrup of orange peel, 2 dr.; fluid ext, of rhei, ½ oz.; tincture of colombo, 5 oz. Mix. Dose—A tablespoonful in water three times a day before meals.

Langdon's Diarrhea Mixture.—Tincture of camphor, 2 dr.; tincture of capsicum, 1 dr.; spirits of lavender comp., 2 dr.; tincture of opium, 2 dr. Mix. Dose—Twenty-five drops in a little sugared water after each operation.

Rheumatism Application.—Oil of hemlock, 2 oz.; oil of horseradish, 2 oz.; oil of celery, 2 oz.; oil of pennyroyal, 2 oz.; oil of sassafras, 2 oz.; alcohol, to make 1 gal. Mix. The above is a powerful external application in sciatica, rheumatism, neuralgia, etc., and is the preparation sold by a party to physicians throughout the West.

Pain Expeller.—Tincture of capsicum, 25 dr.; tincture of camphor, 5 dr.; aqua ammonia, 10 dr.; alcohol, 10 dr.; opodeldoc, 10 dr. Mix.

Erysipelas Wash.—Sugar of lead, 2 dr.; plaster paris, 2 dr.; tincture of opium, 2 oz.; tincture of catechu, 2 oz.; water, 12 oz. Mix and apply.

Mixture of Licorice, Comp.—Solution of ext. of licorice, 1 fl oz.; simple syrup, 5 fl. dr.; mucilage of gum arabic, 11 fl. dr.; water, a sufficient quantity to make 12½ fl. oz.; camphorated tincture of opium, 2 fl. oz.; wine of antimony, 1 fl. oz.; spirits of nitrous ether, ½ fluid oz. Mix.

Allcock's Porous Plaster.—India-rubber, 1 lb.; pitch, 8 oz.; gum thus, 8 oz.; cayenne pepper, 30 gr. The last ingredient is to be added to the others previously melted. The mass is spread on muslin or linen perforated with small holes, allowing vent for perspiration and affording increased flexibility.

Morgan's Elastic Plaster.—Take thin sheet-rubber and apply to it a coating of Boyton's plaster, namely, lead-plaster, 94 parts; resin, 6 parts. This plaster has the advantage of accommodating itself to all movements of the muscles without curling up or becoming stiff, and has been used with good advantage as a dressing to sores and wounds.

Belfast Ginger Ale Powder.—White sugar, 16 oz.; bicarbonate of soda, 3½ oz.; citric acid, 4½ oz.; essence of ginger, 1½ oz.; cayenne, 4 dr.; lemon, 40 drops. Dry the soda, acid and the sugar very carefully; before drying the sugar incorporate with it the essences thoroughly, to which a small quantity of caramel may be added as coloring.

Owen's Compound Extract Buchu.—Buchu leaves, 12 oz.; uva ursi, 4 oz.; alcohol, 3 pints; water, 6 pints. Treat the leaves by maceration and displacement, first with a portion of the alcohol and then with the remainder mixed with the water; evaporate the resulting liquid by a gentle heat to 3 pints, and to this add: Sugar, 2½ lbs. Continue the heat till the sugar is dissolved, and after removing from the fire add: Oil of cubebs, 1 fluid dr.; oil of Juniper, 1 fluid dr.; spirits of nitric ether, 12 fluid oz. Previously mixed with a portion of the alcohol, mix the whole together and shake well. Dose—Teaspoonful.

Sweet Tincture of Rhubarb.—Rhubarb, bruised, 2 oz.; licorice root, bruised, 2 oz.; anise seed, bruised, 1 oz.; sugar, 1 oz.; alcohol, diluted, 2 pints. Macerate fourteen days, express and filter. Dose—Teaspoonful to tablespoonful.

Deshler's Salve.—Resin, 12 oz.; suet, 12 oz.; yellow wax, 12 oz.; turpentine, 6 oz.; flaxseed oil, 7 oz. Melt them together, strain the mixture through muslin and stir it constantly until cold.

Petit's Eye Salve.—White precipitate, 3 oz.; oxide of zinc, 4 oz.; benzoic acid, 2 dr.; sulph. morphia, 48 gr.; oil rosemary, 20 drops; olive oil, 2 lbs.; spermaceti, 12 oz.; white wax, 4 oz.

Melt the spermaceti, white wax and olive oil together; rub the white precipitate, the oxide of zinc, benzoic acid and sulph. morphia with a portion of the warm mixture; add together, and finally add the oil of rosemary. Stir till cold. This is a splendid article.

Glycerine Cream.—Spermaceti, 2 oz.; white wax, 6 dr.; oil of almonds. 8 oz. Melt, strain and perfume, then add glycerine, 2 oz. Rub in mortar till white.

Bateman's Drops.—Diluted alcohol, 1 gal.; red saunders, rasped, ½ oz. Digest for 24 hours, and add: Opium, in powder, ½ oz.; catechu, in powder, ½ oz.; camphor, ½ oz.; oil anise, 1 dr. Digest ten days, then filter. This preparation contains about 1 gr. each of opium, catechu, and camphor, to the half ounce, corresponding in strength with camphorated tincture of opium.

Turlington's Balsam of Life.—Alcohol, 4 pts.; benzoin, 6 oz.; liquid storax, 2 oz.; socotrine aloes, ½ oz.; Peruvian balsam, 1 oz.; myrrh, ½ oz.; angelica, 3 dr.; balsam tolu, 2 oz.; extract of licorice, 3 oz. Digest for ten days and strain.

French Cold Cream.—A French pharmaceutical contemporary gives the following formula for the preparation of this cosmetic, which is said to be an exact imitation in its properties of a product of unknown composition, highly esteemed: Quince mucilage, 20 oz.; almond soap, ½ oz.; stearic acid, 5 oz.; glycerine, 1 oz. It is stated that this preparation is not liable to become rancid, which is a serious drawback with many inferior preparations given in our textbooks.

Thielemann's Swedish Cholera Mixture.—Oil of peppermint, 4 dr.; alcohol, 4 oz.; wine of opium and saffron, 1½ oz.; tincture of ipecac, 4 oz.; tincture of valerian, 6 oz. Dissolve oil in alcohol, add wines and tinctures and filter. Dose—One-half to teaspoonful.

Milburn's Mixture.—Precipitate prep. chalk, 2 dr.; loaf sugar, 2 dr.; powdered gum arabic, 2 dr.; mint water (green preferred), 4½ oz.; laudanum, 10 drops; spirits of lavender, comp., 2 dr.; simple syrup, 1½ oz.; tincture kino, 1 oz. Mix. Useful in loose bowels of children and can be given to them after each alvine evacuation regardless of number. Dose—From half to a tablespoonful. Shake well before using.

Elixir Benzoin Comp.—Pulverized squill, 3 oz.; orris, 3 oz.; elecampane, 3 oz.; benzoin, 120 gr.; licorice, 80 gr.; anise seed, 80 gr.; myrrh, 80 gr.; saffron, 18 gr.; diluted alcohol, q. s.; simple elixir q. s., to make 1 pint. Macerate drugs with diluted alcohol till eight ounces of percolate is obtained, then add elixir and filter. Use in catarrh and asthma. Dose—One teaspoonful.

Carter's Citrus Canadensis.—Fluid ext. of blood root, 8 oz.; fluid ext. of lobelia, 6 oz.; fluid ext. of licorice, 8 oz.; tr. opii, 24 oz.; oil of lemon, 2 oz.; alcohol, 30 oz.; tr. capsicum, 6 oz.; New Orleans syrup, 5 gal. Add the whites of five eggs to syrup and bring to a boil; cut oil of lemon with alcohol and add ingredients.

Toothache Drops.—Chloroform, 3 oz.; creosote, 1 oz.; sul.

morphia, ½ dr. Mix the morphia with the creosote; let stand until solution is clear, then add the chloroform.

Lord's Chalk Mixture.—Tincture kino, 1 oz.; tincture camp. opium, 1 oz.; tincture catechu, 1 dr.; tincture opium, 1 dr.; spirits lavender comp., ½ oz.; syrup, simple, ½ oz.; prepared chalk, 1½ oz.; mucilage acacia, 3 oz. Mix. Dose—Tea to tablespoonful.

McKinzie's Ointment.—Powdered sulph. of zinc, 4 oz.; liquid storax, 1 oz.; lard, 16 oz. Mix by means of heat and trituration over a water bath about an hour. A useful application for tetter and scald-heat. Apply night and morning, first washing the spot with castile soap and warm water.

Celery Compound.—Celery seed, 384 gr.; catnip herb, 640 gr.; chamomile, German, 384 gr.; alcohol diluted, sufficient; simple elixir to make 1 pint. Percolate drugs with diluted alcohol till four ounces are obtained, then add elixir and filter. Each fluid drachm contains three grains each of celery and chamomile and five grains of catnip herb. Dose—For children teething, from 10 to 60 drops, according to age.

Improved Itch Ointment.—Vaseline or lard, 12½ oz.; flowers sulphur, 2 oz.; bicarbonate potass., 1 oz.; oil bitter almonds, 1 dr.

Cough Mixture in Consumption.—Mist. glycyrrhiza, com., 4 oz.; syr. prunus virg., 2 oz.; sulph. quinine, 32 gr.; sulph. morphia, 2 gr.; elixir taraxicum, com., 2 oz. Mix. Dose—Dessertspoonful every four hours.

Aphrodisiac Pill.—Quinine, 1 gr.; ext. damiana, solid, 3 gr.; ext. nux vomica, solid, ⅛ gr.; phosphorus, 1-100 gr. Make 1 pill.

Catarrh Remedy (said to be Sage's).—Powdered hydrastis canadensis, 5 dr.; indigo, ½ dr.; powdered camphor, 2 dr.; carbolic acid, 2 dr.; common salt, 50 dr. Powder the camphor by means of alcohol and mix with the salt previously reduced to a fine powder. Rub the indigo and carbolic acid together, mix the salt and camphor and add the powdered hydrastis. Mix intimately without pressure in a mortar.

Ring Worm.—Thymol, 1 to 2 parts; chloroform, 8 parts; olive oil, 24 parts. Mix. The thymol destroys the fungus. The oil prevents irritation and rapid evaporation, while the chloroform facilitates the absorption of the active ingredients by acting on the sebaceous glands.

Meig's Mixture of Gentian and Iron.—Citrate of iron and ammonia, 1 part; fluid extract of gentian, ½ part; compound spirits lavender, 8 parts; alcohol, 4 parts; sugar, 12 parts; water, sufficient to make 64 parts. Mix the fluid extract with eight parts of water; add the compound spirits of lavender; treat this with hydrated oxide of iron and filter; mix the other ingredients with the filtrate and repeat the filtration if necessary.

Pain Killer.—Powdered guaiac, 20 lbs.; gum camphor, 2 lbs.; powdered cayenne pepper, 6 lbs.; water of ammonia, 1 lb.; opium, powdered, 1-3 lb.; alcohol, 32 gal. Macerate for two weeks, press and filter.

Day's Kidney Pad.—Digitalis leaves, 2 oz.; black cohosh, 1½ oz.; juniper berries, 1 oz.; queen of the meadow, 1 oz.; gum guaiac, 1 oz.; gum benzoin, 1 oz.; oil of juniper, 1½ oz. Grind the drugs to a moderately fine powder; add the oil and gums. Make an oblong pad to wear over the kidneys.

Gurlmette's Head Pad.—Angelica root, 1 oz.; ladies' slipper, 1 oz.; lupulin, 1 oz.; Battle's bromidia, 1 dr.; fluid ext. Jamaica dogwood, 1 dr.; oil of eucalyptus, 4 dr. Grind the drugs to a moderately fine powder; make into an oblong pad; put the pad on a roller of oil silk. Wear the pad over the center of the forehead.

Simmons' Liver Regulator (said to be).—Liverwort, 1 oz.; leptandra, 1 oz.; serpentaria, 1 oz.; senna, 1½ oz.; water, 2½ pints; whisky, ½ pint. Bring the water to a boil and pour over the drugs; let stand one day; strain and add the whisky.

Liver Pad.—Mandrake root, ½ oz.; bayberry bark, 2 dr.; leptandria root, ½ oz.; cinchona bark, 1 oz.; gum guaiac, powder, 1 oz.; foenugreek, ½ oz.; oil eucalyptus, 2 dr. Grind the drugs, mix with the guaiac, add the oil. Make into a diamond-shaped pad, to be worn over the pit of the stomach. Should be worn for several weeks. The above is similar to Holman's Liver Pad.

Cuticura Resolvent (said to be).—Aloes, soct., 1 dr.; rhubarb, powdered, 1 dr.; iodide potass., 36 gr.; whisky, 1 pint. Macerate over night and filter.

Red Wash.—Sugar of lead, 1 dr.; sulphate of zinc, 3 dr.; fluid ext. of rhatany, 4 dr.; fluid ext. of hydrastis, 4 oz.; fluid ext. gold thread, 4 oz.; aq. ext. of opium, 6 dr.; water, to make 2 pints. Mix. Inject a portion three times a day.

Elixir of Quinquinia.—Oil of orange, 8 drops; oil of cinnamon, Ceylon, 2 drops; alcohol, 4 oz.; simple syrup, 6 oz.; water, to make 16 oz.; quinquinia, 128 gr.; citric acid, 90 gr. Make a solution of the citric acid in two ounces of the water, in which dissolve the quinquinia; then add the syrup with the oil, the latter previously mixed with the alcohol. Finally add water until the whole measures 16 fluid ounces; then filter.

"Sun" Cholera Mixture.—Tinctures of opium, 2 oz.; camphor, 2 oz.; capsicum, 2 oz.; rhubarb, 2 oz.; peppermint, 2 oz. Mix. Dose—A teaspoonful in water after each evacuation of the bowels.

Perry's Compound Sarsaparilla Blood Purifier.—Turkey corn root, 2 lbs.; stillingia root, 2 lbs.; sarsaparilla root, 2 lbs.; yellow dock root, 2 lbs.; sassafras bark, 1 lb.; simple syrup, 2 gal.; diluted alcohol, 32 pints; water, q. s.; iodide potassa, 2 lbs. Percolate roots and bark with diluted alcohol, add syrup; then add iodide potass. Dissolve in water to make six gallons.

Compound Licorice Powder (German Brustpulver).—Powdered senna, 2 oz.; licorice root, 2 oz.; fennel seed, 1 oz.; washed sulphur, 1 oz.; powdered sugar, 6 oz. Mix them.

Iodia.—Fluid extracts stillingia, 3 oz.; prickly ash, 1 oz.; saxifraga, ½ oz.; yellow parilla, ½ oz.; blue flag, ½ oz.; iodide of potassium, 256 gr.; pyrophosphate of iron, 256 gr.; phosphoric acid, diluted, ½ oz. Dissolve the iodide of potassium in the mixture and the iron in two ounces of hot water; add the solution gradually and lastly add the phosphoric acid. Let stand 24 hours and filter.

Godfrey's Cordial.—Tinct. of opium, 6 oz.; molasses, 4 pints; alcohol, 8 oz.; water, 6½ pints; carbonate of potassium, 5 dr.; oil of sassafras, 1 dr. Dissolve the potassium in the water, add the molasses, heat over a gentle fire till it simmers; remove the scum, add the other ingredients.

Chlorodyne.—Purified chloroform, 4 fluid oz.; stronger ether, 1 fluid oz.; stronger alcohol, 4 fluid oz.; molasses, 4 fluid oz.; powdered ext. licorice, 2½ Troy oz.; muriate of morphia, 8 gr.; oil of peppermint, 16 minims; simple syrup, 17½ fluid oz.; hydrocyanic acid, 2 per cent, 2 fluid oz. Dissolve the morphia and the oil of peppermint in the alcohol. Mix the chloroform and ether with this solution. Mix the licorice with the syrup and add the molasses. Shake these two mixtures well together, and lastly add the hydrocyanic acid and again shake. Dose—Five to ten minims.

Churchill's Iodine Caustic.—Iodine, 1 dr.; iodide of potassium, 2 dr.; water, ½ oz. Mix.

Diaphoretic Powder.—Powdered bayberry bark, 4 oz.; pleurisy root, 4 oz.; wild ginger, 2 oz.; ginger, 2 oz.; sassafras bark, 1 oz.; lady's slipper, ½ oz.; capsicum, ½ oz.; cloves, ¼ oz. Mix. A heaping teaspoonful to a pint of boiling water, well sweetened, and drink freely, or the above can be made into fluid form, as is the essence of composition, by maceration or percolation with diluted alcohol, to make one quart. The above is a valuable remedy, useful in sudden colds, coughs, hoarseness, influenza, sore throat, headache, cold hands and feet, dysentery, cholera morbus, colic, jaundice, etc., and is also a mild and safe stimulant.

Cholera Mixture of the British Army.—Oils of anise seed, 3 dr.; cajeput, 3 dr.; juniper, 3 dr.; ether, 8 dr.; liquor acid of haller, 1 dr.; tinct. of cinnamon, 4 oz. Mix. Dose—Take ten drops every fifteen minutes in a little water. Liquor acid of haller consists of three parts of alcohol and one part of concentrated sulphuric acid.

No. 6 Hot Drops.—Powdered capsicum, 1 oz.; powdered gum myrrh, 4 oz.; alcohol, 2 pints. Macerate, press and filter.

Ready Way for Paregoric.—Tinct. of opium, 384 drops; oil of anise, ½ dr.; benzoic acid, 30 gr.; camphor, 20 gr.; honey, 1 oz.; diluted alcohol, 1 pint. Mix and filter. The above is recommended only when pushed for time.

Tobias' Venetian Liniment.—Spirits of hartshorn, 5 oz.; camphor, 2 oz.; tincture of capsicum, 5 oz.; alcohol, 30 oz.; water, 10 oz. Mix.

Goddard's Diarrhea Mixture.—Tinctures of catechu, 4 fluid oz.; opium, 2 fluid oz.; camphor, 2 fluid oz.; aromatic spirits of ammonia, 1 fluid oz. Mix. Dose—Forty drops every two hours.

Brown's Bronchial Troches.—White sugar, 1½ lbs.; ext. of licorice, 1 lb.; cubebs, 4 oz ; gum arabic, 4 oz.; fluid ext. of conium, 1 oz. Mix.

Trix, or Jokes.—Ext. of licorice, 3 oz.; oil of cloves, 90 drops; oil of cinnamon, 15 drops. Mix.

Jayne's Expectorant.—Syrup of squill, 2 oz.; tinctures of tolu, 1½ oz.; camphor, 1 dr.; lobelia, 1 dr.; digitalis, 1 dr.; opium, 2 dr.; pulv. ipecac, 4 gr.; tartar emetic, 4 gr. Mix.

Buckler's Comp. Mixture.—Tartar Emetic, 2 gr.; pulv. ipecac, 40 gr.; syrup of squills, 2 fluid oz. Mix. Teaspoonful every ten minutes until it operates as an emetic.

Osgood's Celebrated Ague Cure.—Sulph. of quinine, 2 dr.; fluid ext. leptandra, 2 dr.; saturated tinct. of queen's root, 4 oz.; fluid ext. podoplyllum, 3 dr.; oil of sassafras, 10 drops; oil of wintergreen, 10 drops; New Orleans molasses, sufficient to make an 8-oz. mixture.

Piso's Consumption Cure.—Tincture of tolu, ½ oz.; fluid ext. lobelia, 2 dr.; fluid ext. cannabis, indica, 2 dr.; sulph. of morphia, 4 gr.; tartar emetic, 4 gr.; chloroform, 1 dr.; essence of spearmint, 10 drops; hot water, 8 oz.; sugar, 14 oz. The fluid extracts, tincture of tolu, chloroform and essence of spearmint must be mixed with the sugar in a bottle. Dissolve the morphia and tartar emetic in the hot water and mix; when thoroughly dissolved filter. Dose—For an adult, one tablespoonful.

Ayer's Sarsaparilla.—Fuid exts. sarsaparilla, 3 oz.; stillingia, 3 oz.; yellow dock, 2 oz.; Mayapple, 2 oz.; sugar, 1 oz.; iodide of potassium, 90 gr.; iodide of iron, 10 gr. Mix them.

Stormont's Disinfectant.—Sulphate of iron (crushed), 10 lbs.; carbolic acid (crude), 8 oz.; water, 10 gal. Mix. Useful in time of epidemics.

Kellogg's Red Drops.—Spirit of camphor, 2 oz.; spirit of origanum, ¼ oz.; oil of sassafras, ¼ oz.; oil of turpentine, ½ oz.; color tincture, 4 oz. Mix them.

Dr. Pierce's Golden Medical Discovery.—Fluid extracts of chinchona, 16 oz.; columbo, 4 oz.; guaiac, 8 oz.; licorice, 4 oz.; tincture of opium, 1 oz.; podophyllin (resinoid), 120 gr.; glycerin, 6 fluid pints; alcohol, q. s. Dissolve the podophyllin in the alcohol and add the rest of the ingredients. Mix them. Dose—A teaspoonful.

Dr. Pierce's Favorite Prescription.—Savin, 10 parts; agaric, 5 parts; cinnamon, 5 parts; Peruvian bark, 10 parts; make a decoction of water, 220 parts; and add gum arabic, 10 parts; sugar, 5 parts; tincture of digitalis, 2 parts; tincture of opium, 2 parts; oil of anise, 8 parts; dissolve in alcohol, 45 parts.

Coe's Dyspepsia Cure.—Powdered rhubarb, 2 dr.; fluid ext. of gentian, 3 dr.; peppermint water, 7½ oz.; bicarbonate of sodium, 6 dr. Mix them. Dose—A teaspoonful half an hour before meals.

Ayer's Cherry Pectoral.—Syrup of wild cherry, 6 dr.; syrup of squills, 3 dr.; tincture of blood root, 2 dr.; sweet spirits of niter, 2 dr.; wine of antimony, 3 dr.; wine of ipecac, 3 dr.; syrup, 1½ oz.; acetate of morphia, 2 gr.; spirit of bitter almonds, 1 dr. Mix.

Walker's Vinegar Bitters.—Powdered golden seal, 1 oz.;

powdered aloes (cape), ½ oz.; watef, 16 oz. Bottle up; tie the cork down tightly. Ready for use in ten days.

Hall's Hair Renewer.—Precipitated sulphur, 1 dr.; acetate of lead, 1 dr.; salt, common, 2 dr.; glycerine, 8 fluid oz.; bay rum, 2 fluid oz.; Jamaica rum, 4 fluid oz.; water, 16 fluid oz. Shake before using.

Tobias' Derby Condition Powders.—Tartar emetic, powdered, 2 grams; crude antimony, 20 grams; sulphur, 10 grams; saltpeter, 10 grams; foenugreek, powdered, 40 grams; juniper berries, 20 grams. Mix them.

Thompson's Eye Water.—Sulphate of copper, 10 gr.; sulphate of zinc, 40 gr.; rose water, 2 pints; tincture of saffron, 4 dr.; tincture of camphor, 4 dr. Mix and filter.

Granular Effervescent Citrate of Magnesia.—Sulph. magnesia, 5 oz.; bicarbonate of soda, 6 oz.; citric acid, 5 oz.; sugar, 5 oz. Mix the above, all in powder, with sufficient absolute alcohol to moisten the mass thoroughly; pass through a No. 6 sieve, and separate the portion which has not granulated by means of a No. 20 sieve; dry the granules at a temperature not above 60 degrees Fah. Dose—One or two teaspoonfuls dissolved in water.

Pleis' Fit Powders.—Bromide of potassium, 15 gr.; powdered gentian, 5 gr. Mix. Make one powder.

Erysipelas (local application).—Camphor, 15 gr.; tannin, 15 gr.; sulph. ether, 2 dr. Apply every three hours.

German Corn Cure.—Salicylic acid, 1 oz.; ext. cannabis indica, ½ oz.; collodion, 8 oz. Mix. To be applied two or three times a week.

CLEANSING, RENOVATING, ETC.

Alkali Stains, to Remove.—Wash in dilute oxalic acid, acetic acid or vinegar.

Acid Stains.—Saturate with ammonia. Apply chloroform to restore color.

Barrels, to Cleanse.—Put a few pounds of unslacked lime in the barrels, add water, roll and rinse thoroughly.

Black Cloth, to Clean.—I oz. bicarbonate of ammonia in 1 qt. water. Rub the surface with black wool cloth dipped in the solution and follow with clear water. Iron dry upon the wrong side. For spots, glycerine, 1 oz.; sulphuric ether, 1 oz.; alcohol, 1 oz.; ammonia, 4 oz.; castile soap, 1 oz. Mix and add water to make two quarts. Apply.

Blood Stains, to Remove from White Goods.—Lay on a paste of laundry starch quite wet; repeat the application. Soda or potash is sometimes used.

Borax is also useful for laundry purposes instead of soda. Add a handful, powdered, to 10 gals. boiling water. It will not injure the texture of the fine fabrics, such as lace or embroidery.

Brass or Copper, to Clean (U. S. Army Method).—Remove all grease with soda water; wash with solution of oxalic acid; rinse and rub with sawdust or whiting.

Brushes, to Wash.—Use hot water and ammonia or soda; rinse. Moisten the wood as little as possible; dry with bristles downward.

Celluloid Collars, Brushes, Etc., to Whiten.—Use moist cream of tartar or sapolio; rub with a woolen cloth.

Cleansing Fluid for Removing Acid, Wax, Tar, Grease Spots, Etc.—One hundred parts alcohol, 30 parts liq. ammonia, 4 parts benzine.

Grease Spots from Clothing, to Remove.—Put over the spot a piece of blotting paper and apply a hot iron.

Oil Stains from Floors, to Remove.—Use oxalic acid and water, and wash well with soda or soap.

Dyes and Stains, to Remove from the Hands.—A weak solution of oxalic acid may be kept bottled for use. Other simple agents are ammonia, alcohol, vinegar and sapolio.

To Take Out Paint from Fabrics.—Equal parts ammonia and turpentine. Saturate two or three times and wash out with soap and water. Remove tar with plain turpentine.

Fruit Stains, to Remove.—Pour boiling water through the articles. If necessary bleach out any remaining stains by holding over burning brimstone.

Ink Spots, to Remove.—Wet the spot with sour milk; rub a piece of lemon in salt, then a few times on the spot. In the absence of lemon, use oxalic acid and rinse at once, as the acid is poisonous.

Magic Annihilator, to Remove Grease, Etc.—A splendid article. 1 qt. aqua ammonia, 2 gals. rainwater, 1 lb. best white soap, 2 oz. saltpeter. Dissolve the soap and saltpeter in the water with gentle heat and add the ammonia when cold.

Nitrate of Silver Stains, to Remove from Cloth.—Wet promptly with bichromate of mercury. To clean the fingers use a strong solution of iodide of potassium.

Rust Spots, to Remove.—Two parts cream tartar; 1 part oxalic acid pulverized fine. Keep dry in bottle; apply on stain while article is wet. Rinse thoroughly.

Silver, Discolored, to Clean.—Rub with a boiling solution of borax. Polish with whiting. Egg stains—rub with wet salt.

To Brighten and Polish Silverware.—Boil 2 oz. carb. ammonia in 1 pint rain water, dip a piece of muslin in this and dry without wringing. This will polish silver beautifully.

Stove Zinc, to Clean.—Rub with kerosene; it is better than soap suds.

Tar, Cart Wheel Grease, Pitch, Asphalt, to Remove.—White Goods: Use soap and oil of turpentine; alternate with streams of water. Silk or Colored Goods: Use benzine in place of turpentine.

Velvet, to Clean.—Rub lightly and rapidly with clean soft white cotton cloth dipped in chloroform; repeat until clean. To restore the pile of velvet, steam upon wrong side over boiling water.

To Clean Engravings, Wall Paper, Etc.—Cut a fresh loaf of bread in thick slices, paring away the crust; rub lightly but firmly. Or mix flour and dilute ammonia to a stiff dough and use in the same way.

Windows, Mirrors, Etc., to Clean.—Moisten calcined magnesia with benzine to a paste. Keep in glass, air tight. Do not use near a fire or light.

Window Glass, to Remove Paint, Putty or Oil.—Cover with paste of baking soda and rub off just before dry. Or moisten with a little turpentine.

CEMENTS, ARTIFICIAL STONE, ETC.

Chinese Cement.—Useful for outdoor stucco, and for rendering boxes, baskets, pails, troughs, etc., watertight. Three parts fresh beaten blood, 4 parts slacked lime and a little alum; mix together. It is cheap, tenacious and durable, and has stood the test of centuries in China.

Cracks in Walls.—Fill with plaster of paris, moistened to the consistency of putty.

Cement for Leather, Belting, Shoe Patches, Etc.—Common glue and isinglass, equal parts. Let them soak in water 10 hours and bring to boiling point; add pure tannin until the whole becomes ropy or looks like the white of an egg. Apply it warm.

Diamond or Armenian Cement.—Isinglass, 1 oz.; distilled vinegar, 5½ oz.; spirits wine, 2 oz.; gum ammoniacum, ½ oz.; gum mastic, ½ oz. Mix with gentle heat. Keep tightly corked. This is used by Turkish jewelers to cement diamonds, etc., to watch cases and other jewelry. Use for glass, china or other polished metals.

Portland Cement.—Gray chalk is mixed with ¼ its weight in clay, in a pug mill, with warm water; then drained and dried with heat; then burned in a kiln and ground between millstones.

Artificial Stone Sidewalks, Cement For.—Excavate the sidewalk 18 in. deep; fill in large stones to within 6 in. of the surface. Take Portland cement, 1 part; stone chips or hard gravel, with a little sand, 6 parts, with water to make a stiff concrete mortar, and bed it in upon the stone bottom to within two inches of the surface. Then take Portland cement, 1 part, and fine sand, 2 parts; mix with water to a mortar and lay it in up to the surface. It hardens very quickly after mixing. Much ingenuity can be displayed in marking the surface into tile patterns of varied colors.

Concrete, for Foundations, Etc.—The concrete for the foundations of the Brooklyn bridge was composed of Rosendale cement, 1 part; sand, 2 parts; coarse gravel, 4 parts; mixed. This concrete should endure for centuries.

Artificial Stone.—A famous recipe for the manufacture of artificial stone, said to be as durable as limestone or granite: Ten parts silicic acid, powdered and freed from impurities; mix with 90 parts water and 100 parts of quicklime, all by weight; 100 parts of the product are mixed with 100 parts sand and 5 parts magnesia, powdered or fluor-spar, and the mass molded as desired. To secure a high degree of hardness it should be dried under a powerful hydraulic or other pressure. The stones are then treated with a boiling saturated solution of chloride of lime from 6 to 12 hours. To imitate granite, marble, etc., a crushed gravel of granite or marble can be used in place of a part of the sand.

Stratina.—This well known cement is said to be prepared as follows: 6 parts white glue are dissolved in 8 parts acetic acid. To this solution add another composed of 1 part fresh gelatine in 8 parts water. After mixing, add 1 part shellac varnish.

Spalding's Liquid Glue.—Celebrated. One lb. isinglass, 1 part rainwater. Boil and prepare as ordinary glue; stir in slowly 2 oz nitric acid; bottle.

Scars Left by Wounds, Burns, Etc., a Lotion to Remove.—Borax, ½ oz.; salicylic acid, 12 grns.; glycerine, 3 drms.; rose water, 6 oz. Mix, and apply 3 times daily. This lotion will also assist in the removal of small pox pits or ring worm scars. Saturate lint in the preparation, and apply overnight for several weeks.

MADAME QUI VIVE'S PREPARATIONS.

The following Toilet preparations have been recommended by Madame Qui Vive, Editor of the Woman's Department of the Chicago Times-Herald. They were selected by a prominent expert in the art of compounding toilet articles, and thousands testify to their value and efficacy.

PERFUMES.—Violettes de Bois.—Ess. violets, 5 oz.; ess. acacia, 1 oz.; ess. rose, 1 oz.; extract orris root, 1 oz.; oil bitter almonds, 5 drops.

Violet Lotion.—Alcohol, 4 oz.; ammonia, 1 oz.; ess. violets, 1 dram. Add to water when bathing the face and neck. Hard water is injurious to the complexion. This lotion will tend to soften it.

Violet Toilet Water.—Ess. of violet, 1¾ oz.; ess. rose, ½ oz.: ess. cassia, ½ oz.; alcohol, 14 oz.

Poudre Vicomtesse.—Talcum powder, 7½ oz.; oil of orris, 10 drops; finest starch, 1¼ oz., powdered orris root, 1¼ oz.

COMPLEXION POWDERS.—Fairy Powder.—10 oz. Lubin's rice powder; 3 oz. oxide of zinc; ½ oz. carb. magnesia powder; 20 grains boracic acid; 2 drops attar of roses.

Consuelo Powder.—5 oz. talcum; 5 oz. rice flour; 2½ oz. zinc oxide; 2 drops each oils bergamot, ylang-ylang and neroli; beat fine and mix.

Almond Meal.—Orris root powdered, 4 oz.; wheat flour, 4 oz.; white castile soap, pow'd, 1 oz.; pow'd borax, 1 oz.; oil bitter almonds, 10 drops; oil bergamot, 1 fluid dram; tincture musk, ½ fluid dram; mix and pass through a sieve.

Glycerine Balsam.—White wax, ½ oz.; spermaceti, 1 oz.; oil sweet almonds, 4½ oz.; glycerine, 1½ oz.; oil rose geranium, 8 drops.

Face Wash.—Rose water, 3 oz.; bay rum, 2 oz.; glycerine, ½ oz.; borax, ½ oz.

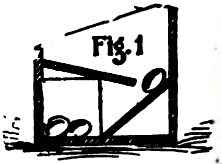
Glycerine Cream (excellent).—Spermaceti, 4 drms.; white wax, 1 dram; oil of almonds, 2 troy oz.; glycerine, 1 troy oz.; melt and mix together; when cooling add the glycerine and perfume as desired.

SACHET POWDERS.—Violet Sachet Powder.—8 oz. orris root; 5 drops oil bergamot; 4 drops oil of rose; 3 drops of oil bitter almonds; 1 fluid dram tincture of musk.

Lavender Sachet Powder.—¼ oz. gum benzoin (pow'd); 1 lb. pow'd lavender; 6 oz, oil lavender.

Heliotrope Sachet Powder.—2 oz. tonquin ground fine; ¼ lb. rose leaves; ¼ lb. pulv. orris root; 1 oz. pow'd vanilla; ½ grain musk; 2 drops oil almonds. Mix through a sieve.

Dentifrice—¾ oz. pulv. Castile soap; ¼ lb. prepared chalk; 10 oz. pow'd orris root; ½ dram oil sasafras: 1 oz. pulv. sugar.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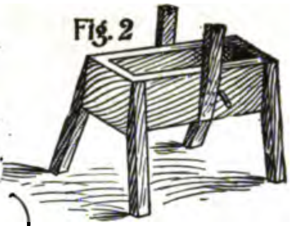
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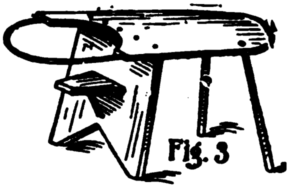
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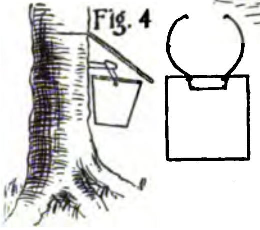
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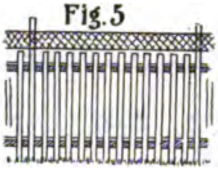
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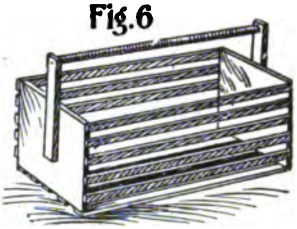
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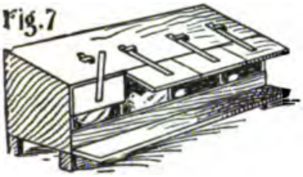
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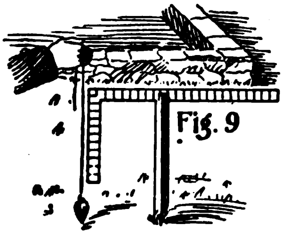
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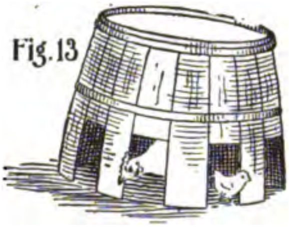
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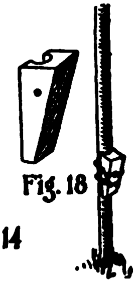


Fig. 18

Fig. 12

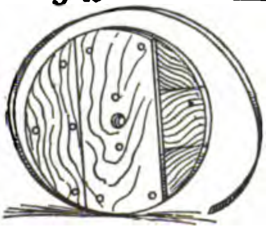


Fig. 15

Fig. 14

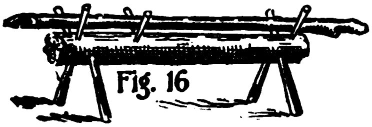


Fig. 16

Fig. 17

Home Contrivances and Farm Appliances

HOME MADE CONTRIVANCES AND USEFUL APPLIANCES.

Fig. 1. Nest for Egg-Eating Hens.—Two false bottoms are put in the nest box, as seen in the cut. They can be covered with any soft cloth or old carpet, and moss or chaff placed on the bottom of the box. The nest egg can be tied or cemented in. This will save great loss from hens who have formed the bad habit.

Fig 2. Home-Made Grindstone Box.—Make a trough of pine or hardwood plank 12 or 14 in. square, and say three feet long. Nail to this legs 4 in. wide, 1½ in. thick, beveled at the top. Nail 2 stout hardwood hangers in the middle, mortised at the top for the shaft, which can be wood or iron. Line the journals with sheet lead or flattened lead pipe. A wooden plug draws off the water after each using for constant immersion injures the stone. As the stone wears down, deepen the grooves in the hangers. Give the box a heavy coat of boiled oil and after a week a coat of lead and oil. Use a long shaft to accommodate the long reaper knife bar.

Fig. 3. A Milking Stool.—Hollow out the front of the seat board and adjust to it a wire that will hold your pail snugly to the shelf on the notched board leg forming the front support. The milker sits astride of the stool.

Fig. 4. Cover for Sap Bucket.—Take a wide shingle, saw off 4 in. of the tip and fit it with a piece of spring wire, which can be fastened with little staples or a lath cleat. The wire should be about 30 in. long and springs onto the tree, where it hangs firmly.

Fig. 5. A Hen Tight Picket Fence.—If the garden is protected the fowls can be allowed free range. At intervals of 12 feet let a certain picket project above the others 15 in.; on these stretch a 12 in. strip of wire netting. The fowls do not notice the netting till they strike against it, and soon relinquish the attempt to fly over.

Fig. 6. A Barn Basket, as represented, is a very convenient article. It is made with inch boards for the ends, and lath for the sides and bottom. Dimensions for one bushel, 20x12x9. Half bushel, 18x10x6. One peck, 10x9x6.

Fig. 7. Nest for Setting Hens.—This nest box can be made to hold more or less nests. When the hen is first set, close the lid to avoid interference by other hens, but after four or five days the precaution is unnecessary. The legs are 6 inches long; the step, 6 in. wide, is a part of the bottom of the box.

Fig. 8. Trap for Locusts and Grasshoppers (invented by a Minnesota farmer's wife).—A strip of sheet iron 10 to 30 ft. long is turned up at each end and one edge, and drawn like a sled over the fields. It is smeared with a thick coat of gas tar, and is drawn by a heavy wire bent to a right angle, attached to each end. A foot in front of the sheet iron a light chain or wire drags on the ground and disturbs the insects. They hop upon the trap and are caught in the tar. Scrape the locusts from the trap and burn.

Fig. 9. To Level With a Steel Square.—Drive a narrow board, 3 ft. long, into the ground, and hang one arm of the square in a notch made in the upper end. Hold a plumb and line near the long arm of the square to keep it exactly perpendicular. The short arm is then exactly level. **To find the number of feet fall in a slope,** stand a pole at the bottom of the slope and take a sight at it with the level square from the top of the slope.

Fig. 10. Stump Puller.—Any blacksmith can make it, and two to six horses can easily twist out a good sized stump. The point is driven into the stump and the lever passed through the end link of the chain. The longer the lever the greater the purchase. Every part should be very strong. You can pass the chain around more than once if necessary.

Fig. 11. Cattle Check.—To prevent a cow from throwing fences or hooking other animals, take a hardwood strip 2½ in. wide and ¾ in. thick and attach to the tips of the horns (as shown in cut) by screws or pins, having first fastened to it a 3 in. hardwood strip ½ in. thick, reaching within 3 in. of the nostrils and within an inch of the face. In the end of this 3 in. strip drive sharp nails to project ¼ in. The nails will not incommode the cow ordinarily, but cause sharp pain when she hooks.

Fig. 12. An Ingenious Rat Trap.—The losses to farmers by rats are enormous. To catch a rat with a steel trap, make a funnel with boards so he must pass through it and over the trap, which is covered with bran or sawdust. This barrel trap explains itself. The circular board just balances on a pivot, but the least touch upsets it and spills the rat into the water beneath, where a block of wood 3x6 in. should float. The rat mounts this and attracts his mates by squealing for help. Let the rats get wonted by feeding them on the barrel top several nights before setting the trap. A piece of tin also makes an excellent tilting top.

Fig. 13. Barrel Coop.—Old barrels or hogsheads can be utilized for chicken coops. If more room is needed two or more can be placed side by side and two or more staves cut between them. If there is any danger from rats, one barrel should be placed on a board floor at night, having only 1 opening and that closed from the marauders. A few auger holes will afford ventilation.

Fig. 14. To Prevent a Cow from Sucking Herself, tie a 3 foot hardwood stick tightly to her horns, having first sharpened the ends. A projecting screw or nail in the stick will prevent its slipping.

Fig. 15. Home-Made Wheels for Trucks and Barrows.—A farmer needs a multitude of wheels, and for many purposes these will answer. They are made of hardwood sawed out with a keyhole or a circular saw, and fastened together in 2 or 3 layers with the grain at the right angles. Use screws or wrought nails that clinch for this purpose, and nail on a tire of two inch hoop iron to strengthen the wheel and obviate splitting. Iron washers on the axles help keep the wheel from wearing.

Fig. 16. Sawbuck for Long Poles or Rails.—The picture explains itself, and every one who has had long sticks to saw will appreciate at once its great utility.

Fig. 17. A Rat Guard, to protect hams or other articles hung on a horizontal rope or wire. Melt out the tin bottoms of large fruit cans, pierce holes in the center of these disks, and string them on each side of the hams. The rat will fall off when he tries to pass over them, as they revolve suddenly.

Fig. 18. Driving Hop-Stakes, Poles and Posts.—Long poles cannot be driven with a sledge and shore ones are likely to split. This contrivance is very convenient. Cut a block of tough wood a foot long, 4 or 5 in. square at the top, tapering to the bottom (as shown in cut), with the side next the stake slightly hollowed. With a common trace chain strap the block to the pole and the blows of the sledge on the block drives it into the ground. Each blow tightens the chain, which should be passed through a hole in the block to prevent dropping when the block is raised and loosened.

Fig. 19. A Cheap Well Curbing.—In the new prairie country brick and stone are often scarce and high, and cement barrels or hogsheads can be used to make a well that will last a number of years. It will be more durable if the barrels are painted with tar or crude petroleum. Sometimes the space around the barrels can be filled up with stone mortar mixed with hard gravel.

Fig. 20. A Capital Bag Holder.—Make a cheap table of planking with gaspipe or hickory poles for legs. Any tinsmith will make you a funnel of tin or sheet iron. The bag is held by hooks on the plank, or on the funnel.

Fig. 21. To Prevent Cows from Sucking Themselves.—Take a three-foot stick and fasten one end to a short rope that hangs from the cow's neck or halter; pass the other end between her legs, and fasten to a band or rope encircling her body behind the front legs.

A Simple Rain Gauge.—Measure a scale of inches and fractions on a common 2 quart fruit jar. Insert a funnel whose top has the same diameter as the inside of the jar. The funnel gathers the rain as it falls and its volume is accurately measured in the jar.

Fig. 22. **A Home-Made Root Cutter.**—When a small number of animals are fed this will answer the purpose. The box should be large enough to hold a bushel or more of roots. The knife can be made from an old scythe or cast away steel bar.

Fig. 23. **A Wheelbarrow for the Stable.**—You often want to save as much of the litter as possible from the bedding of the stock. This vehicle will help you to carry it out in the sun and return it when dry. It is also wonderfully convenient for moving straw, corn fodder, brush, boxes, barrels and other bulky materials.

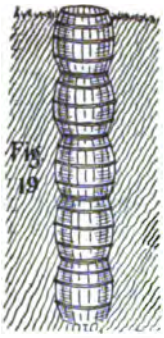
Fig. 24. **Hogshead Sheep Rack.**—This has many advantages over the ordinary rack, as it both prevents waste of hay and the interference of sheep with each other. Cut nine holes in a hogshead 3 ft. in diameter. The holes are 10 in. long.

Fig. 25. **A Convenient Potato Screen,** by which dirt or small potatoes can be removed. The slats should be rounded and smooth to prevent bruising, and a little wider apart at the bottom than at the top. Make the trough about 20 in. wide. The potatoes can be run into a basket, bin, or through the cellar window. An old cloth will catch the screenings if necessary.

Fig. 26.—**Tagging Table for Sheep.**—A sheep placed on his back in this trough cannot turn over and is entirely under control. It will be found a great convenience and time saver when large flocks are handled.

Fig. 27. **A Rabbit Trap.**—Take a common salt barrel, sink it in the ground level with the top, cutting a hole to receive the entrance box, after fitting a tight cover. This box is four feet long, with side pieces 7 in. wide and top and bottom 5 in. wide Cut the bottom board in two at b and put in a pivot at c, making the board narrower so it will tilt easily on the pivot. Put small washers on the pivot. The distance from b to c should be longer than c to d to ensure tilting back. A cleat across the inner opening of the box prevents the rabbit's return.

Fig. 28. **An Ingenious Egg Carrier.**—This contrivance consists of three parts, viz.: the spring bottom board, the egg box, and a frame to set around the egg box as it rests on the springs of the bottom board. Six bed springs are inserted in the holes in the bottom board and fastened by wire staples or tin straps. To the bottom board are fastened 4 leather straps which are screwed to the egg box after it is set onto the springs. Bore six holes in the bottom of the egg box to receive the upper ends of the springs and set the egg box on them, fastening the straps to it firmly. Screw this frame to the bottom board and the arrangement is complete. The frame should be made ¼ inch larger than the egg box to give it play, and can be strengthened with tin straps nailed on the corners and the nails clinched on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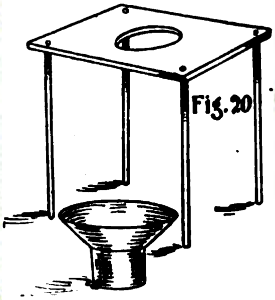
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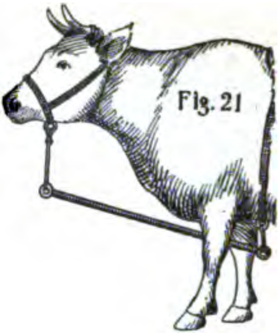
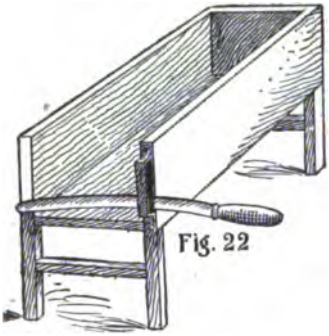


Fig. 21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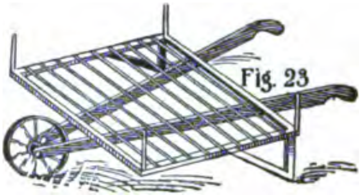
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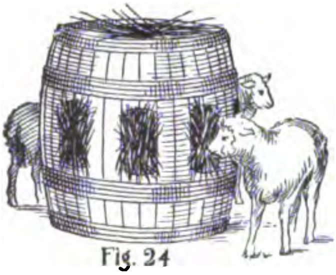
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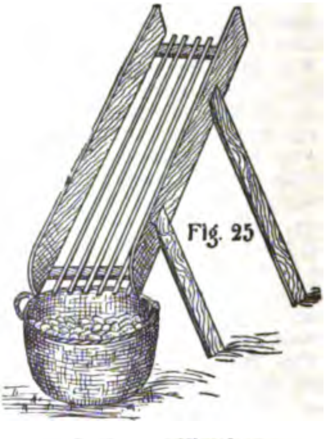
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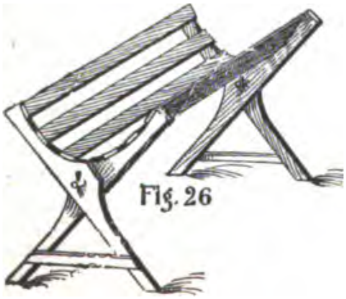
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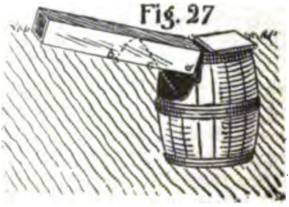


Fig. 27

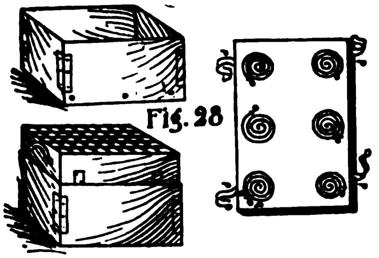
Home Contriv [illegible] Appliances

the inside. With this contrivance you can carry eggs over the roughest roads without breakage.

Fig. 29. A Home-Made Roller.—Every farm should have a land roller, and this one is both cheap and effective. Take a log 6 to 10 feet long and 18 to 25 inches in diameter, and put pins in the ends for axles, 2 inch hickory or 1 inch iron. Make a frame of 2x4 scantling or flat rails 3 or 4 feet long, according to the size of the log. Bore holes for the journals a little back of the middle, and also inch holes, 2 or 3 inches from the rear end, and join the ends with a chain or rope or wire taut enough to prevent the frame from spreading. Fasten the front ends together with a pole or iron rod. The roller is drawn with a double-tree and chain attached to the ends of the scantling.

Fig. 30. Fruit Picker's Ladder.—If made of light wood it can be easily handled and the top end will rest in a small fork of the tree where the ordinary two sided ladder would not stay. The crotch is made by sawing and a bolt with washers through the upright prevents it from splitting higher than the crotch.

Fig. 31. How to Make a Fishing Boat or Scow.—Any ingenious boy can make one. Take five ¾ in. pine boards 12 ft. x 8 in.; 4 inch boards 10 ft. x 12 in.; three strips 10 ft. x3 in. and 1¼ in. thick. Have all planed both sides and free from knots or shakes, and well seasoned. Cut two of the 1 inch boards (as side boards) sloping at each end to a straight line for 2 feet, and then slightly rounding to the middle of the board. Cut two pieces of the 1¼ in. strips into lengths of 2 ft. 10 in. and nail them across the side boards. Dip tough brown paper in tar and place in the joints as you nail on the bottom boards. Cut the 8 in. boards into 3 foot lengths and nail them accross the bottom, beveling them to make close joints. Then take two of the 1¼ in. strips to strengthen the sides of the boat and cut grooves for the rowlocks across them with the sew. Each groove 1 in. deep and 1½ in. wide, the first 3½ feet from the end of the boat and the other groove 3 in. further in; put another pair of grooves 3½ feet from the other end, providing for two rowlocks on each side, each 3½ feet from the end of the boat. Nail the strips on the outside of the boat even with the gunwales, with the grooves inwards, fastening them securerly with wrought nails near the rowlocks; or, with ¼ in. carriage bolts. The rowlock pins should be made of hardwood (see cut). They are 1 in. thick, 1½ in. wide at the lower part, with a shoulder of ½ in. and beveled on top. The three seats are 10 in. wide, fastened with cleats 1 in. thick, 1½ in. wide and 10 in. long, nailed 3 in. from the gunwales. One seat is in the middle and the others 2 ft. from the ends of the boat. Eighteen inches of each end is closed in for a locker. The long bottom board is nailed on the bottom from the outside, and the nails clinched on the inside. The nails are counter sunk and the holes are puttied up, the seams are calked with oakum or old cotton sheeting dipped in tar, then puttied and the whole boat painted white. Paint the second coat red, white and blue or substitute lampblack (drab) on the inside of the boat.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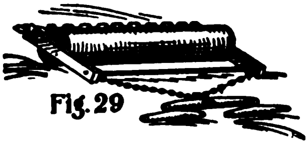
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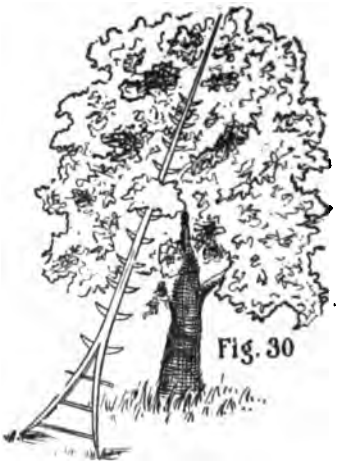
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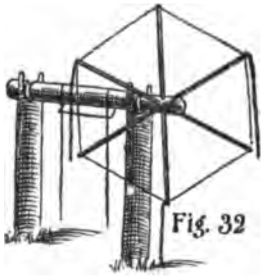
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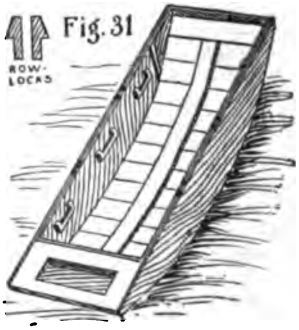
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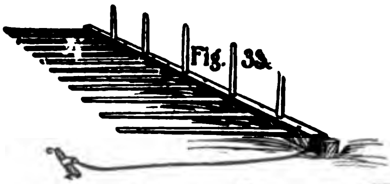
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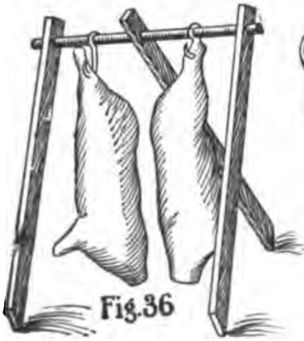
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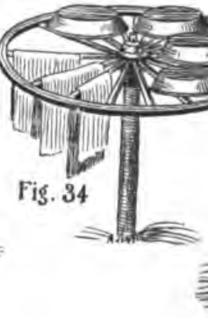


Fig. 34

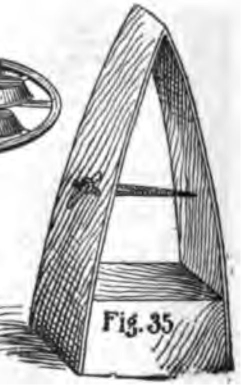


Fig. 35

Home Contrivances and Farm Appliances

Fig. 32. A Beef or Hog Raiser.—Two stout posts are set about 15 ft. high, first mortising the tops to receive the roller, which is grooved at the points it revolves in the mortises. Bore three 2 in. holes in the end of the roller, and pass three stout poles through, and connect their ends with a rope. Bore holes in the roller three feet apart to receive the hoisting ropes. The revolution of the sweep easily raises a heavy load, and the height is adjusted by a short rope from one arm fastened to the upright.

Fig. 33. Hay Gatherer.—A device to avoid pitching or handling. It is a great labor saver and does rapid work. Take a strong 5x6 scantling, 20 ft. long, and insert in it 12 teeth, split from tough, straight timber. They should be six feet long, 2 in. square at the head, slightly tapering and sloped on the under side. Round the lower front edge of the scantling so it will slip easily over the stubble. Attach a clevis to each end in such a way that it will turn the end and allow the rake to be drawn backwards. Have the drawing chains seven feet long. To unload or while empty draw the rake backwards. The uprights are 2 to 3 ft. high.

Fig. 34. Wheel Drying Rack.—The sun and wind are great purifiers, and the thrifty housewife loves to take advantage of their aid. This contrivance at the kitchen door, arranged so that a turn of the wheel will bring the desired article to hand will save her many steps. An old buggy wheel will serve in this useful capacity for many years. By tying poles to the spokes and connecting their ends with clothesline you have a clothes dryer.

Fig. 35. Harness Clamp.—Your harness or shoes often need a few timely stitches and this contrivance saves you many a trip to town, and prolongs the life of the harness for years. With this clamp you can easily hold the shoe or strap while mending it. It is made of oak barrel staves and a block of wood screwed together. You increase the grip by twisting the handle and rope, and hold the clamp between your knees when working.

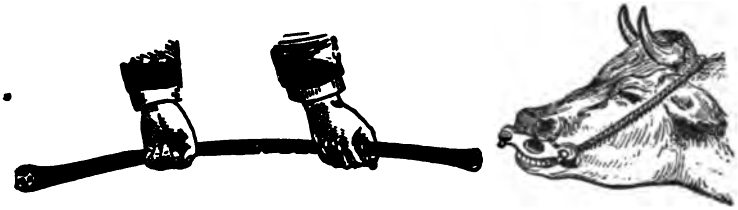
Ventilators for Fodder and Hay Stacks.—These are made in sections out of 2 inch strips about 4 feet long, fastened together by carriage bolts or wire nails. They are shaped like a stool with the seat left off, 4 uprights and 8 cross pieces. They can be used singly or in upright tiers and greatly assist in perfectly curing the fodder, either in the stack or mow. Layers of dry straw between the bundles and layers of corn fodder assist by absorbing the moisture.

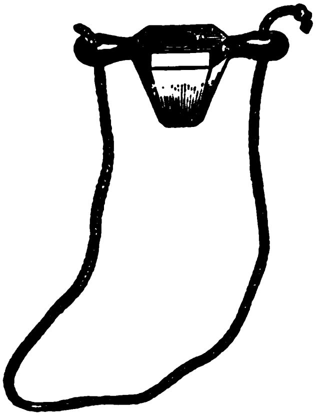
Fig. 36. Rack for Hanging Beef.—Make the cross piece square at the ends and fitted to the front uprights, so that they will not turn. The rear upright should turn on the crosspiece and the hooks should be movable.

Land Measurer.—Prepare a light wheel 16½ ft. (1 rod) in circumference, with an axle and handle which will hold it upright; paint one of the spokes red or tie a colored cloth to it, by which to count the revolutions. By drawing this wheel over the line to be measured, you can make an accurate calculation in rods and feet.

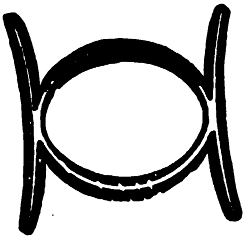
Springs in the Pasture, to Protect.—Take a large iron kettle with a hole in the bottom, or a cylinder of sheet iron, and sink in the spring. Then build a watertight wall all around it with rough stone and cement.

Use of the Probong for removing gas from a cow's stomach. This arrangement is very useful and effective. A wooden gag is the best for holding the mouth open, but an iron gag or balling-iron is sometimes used. The wooden gag avoids the contingency of the animal's gripping the instrument with her molars. Medicine or liquid food can sometimes be administered in this way.



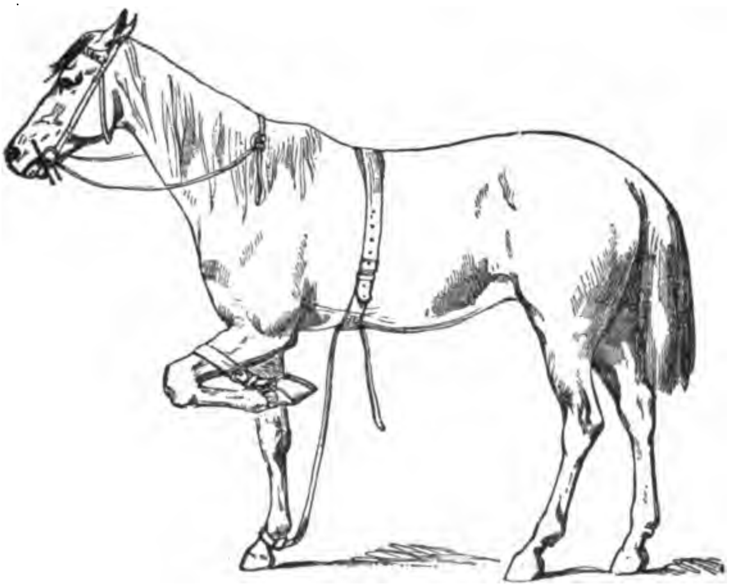


The Wooden Gag.



The Iron Gag.

Appliance for Horse-Breakers.—This method of controlling a refractory horse puts him completely in the power of the trainer.



The Colt completely in the power of the trainer.

It was invented by Rarey and is recommended by Stonehenge, the great English authority on the horse.

MISCELLANEOUS RECIPES AND VALUABLE SUGGESTIONS.

Bedsteads, to Prevent Creaking.—Wrap the ends of the slats in newspaper.

Artificial Slate or Blackboard.—Very fine sand, 4 parts; lampblack, 4 parts; boiled linseed oil, 5 parts. Boil thoroughly together. Reduce with turpentine. Apply 3 coats to pasteboard or the wall or other smooth surface and rub smooth with cotton waste or rags.

Eggs, to Preserve. (Several New Methods.)—Rub with melted paraffine, or with a thin solution of gum arabic or shellac.

A new method in Germany is to coat the eggs with "water glass," a solution of silicate of soda. After coating by any of the above processes pack in powdered charcoal, or charcoal and bran, with small ends downward.

Babcock Fire Extinguisher, to Charge.—6 parts bichromate of soda, by weight, in the water; 5 parts sulphuric acid in a lead bottle which is turned over by the crank, spilling the acid in the soda water, at once generating carbonic acid gas, which causes the solution to rush from the nozzle.

To Extinguish Fire.—Chloride of lime, 20 parts; salt, 5 parts; dissolved in 75 parts water. Apply with hand pump.

Fire Extinguishing Solution.—Fill thin, spherical bottles of blue glass with a solution of chloride of lime and borax. Break over the incipient fire.

Fireproof Shingles.—Sulphate of zinc, 20 lbs.; alum, 20 lbs.; caustic potash, 8 lbs.; manganic oxide, 8 lbs.; mix in barrel of water, add sulphuric acid, 8 lbs. Soak the shingles for 3 hours; dry and repeat till the shingles are fireproof.

Fireproofing Textile Fabrics, Clothing, Etc.—Sulphate of ammonia, 8 lbs.; carbonate of ammonia, 2½ lbs.; boracic acid, 2 lbs.; borax pulv., 1¾ lbs.; starch, 2 lbs.; water, 100 lbs. Steep the fabric in the above hot solution until thoroughly saturated. Dry without wringing.

Fireproof Lumber.—Make a solution in hot water of 2 lbs. alum, 2 lbs. sulphate of copper, and add to 100 gal. water. Sink the lumber in this solution 5 days.

Fence Posts, Everlasting.—Nearly every common post can be made as durable as red cedar. Stir powdered charcoal in boiled linsed oil to a thick paint; coat the timber with this.

Furniture, to Remove Bruises from.—Keep the bruise continually wet with warm water, which swells the injured wood: cover with brown paper and apply a warm iron. Repeat the process till the injury disappears.

Furniture Renovator.—Refined oil of amber, ½ lb.; olive oil, ½ lb.; tincture of henna, ½ oz. Mix and apply with a rag.

Hayricks, Cheap Covering for.—Any cheap fabric. Soak a hours in strong alum water; dry and coat thickly with tar.

Polish for Harness or Leather.—Glue, 4 oz.; vinegar, 1½ pts.; gum arabic, 2 oz.; black ink, ½ pt.; isinglass, 2 drms. Dissolve the glue in the vinegar with gentle heat, and the gum in the cold ink, melt the isinglass in a little boiling water; add first the gum solution and then the isinglass; mix with gentle heat; do not boil. When using apply melted with a sponge and dry quickly.

Harness Dressing (U. S. Army).—Neatsfoot oil, 1 gal.; beef tallow, 4 lbs.; beeswax, 2 lbs. Melt slowly, add 2 qts. castor oil, 1 oz. lampblack, stir, strain and cool. 2. **For a cheaper article.**—Melt together, without boiling, 3 lbs. tallow, 1 lb. neatsfoot oil, a little lampblack; stir.

Grafting Wax.—5 parts resin; 1 part beeswax; 1 part tallow; melt together. Apply to the graft warm with a wooden spatula. Cover thoroughly and carefully to exclude the air. It needs no bandage.

Ink, Portable.—Saturate leaves of paper with aniline black; press into a mass. A piece steeped in water makes the ink.

Ink Eraser.—Equal parts oxalic acid and tartaric acid in powder. Dissolve when used in a little water. Remove the excess at once with a moist sponge.

Printing Ink, to Erase.—Put a thick white blotter beneath the paper; apply sulphuric ether several times with cotton wool, and absorb with another blotter.

Faded Ink, to Restore.—Moisten the paper, then brush the ink with sulph-hydric ammonia solution. The iron of the ink unites, making black sulphide of iron.

Flowers, to Preserve the Natural Color When Pressed.—Immerse, for an instant, in a solution of 1 part salicylic acid and 14 parts alcohol, occasionally, while the pressing process is going on. A little saltpeter or carbonate of soda in the water in which fresh flowers are kept will preserve them two or three weeks.

Grass, to Kill, or Prevent Weeds Growing in Paths.—Sprinkle or saturate with a strong solution of salt or soda.

To Crystallze Grasses, Etc.—Dry the leaves, steep in a strong solution of alum for a few minutes and dry again. The effect is very beautiful.

Cast Iron, to Preserve.—Paint with hot pitch to which 8 per cent of linseed oil is added.

Ink, Sympathetic or Invisible,—Write the letter with a solution of boiled starch or rice on unglazed paper. To render the ink visible subject the paper to the vapor of iodine or iodide of potassium. Another excellent article is made as follows: ½ oz. distilled water; 1 dram bromide of potassium; 1 dram sulphate of copper. Mix and apply with a clean pen. The ink becomes brown when heated.

Insects, to Expel.—Camphor gum or oil of pepermint will keep them away from seeds. Any kind of mint scattered about the permises will tend to drive them away. All insects dread pennyroyal. Use fresh or the oil. Pennyroyal sachets may be laid in mattresses or drawers.

Laces to Wash. (Furnished by an expert.)—Cut up 1 cake of Ivory soap ((use no other) in 1 gal. of cold water. Put in the lace and boil 2 hours. Do not rub, but rinse well. To whiten, add blueing to the rinsing water. For stiffening, take 1-3 isinglass and 2-3 Irish moss; simmer till dissolved. Strain through a cloth.

Mice, to Exterminate or Drive Away.—1 part calomel; 5 parts flour; 1 part sugar; 1-10 part ultramarine. Mix and powder; place in a dish. A most efficient exterminator.

Mosquitoes, to Drive Away.—Evaporate gum camphor in a tin over a flame; avoid its igniting. Or dip a sponge in spts. camphor and suspend over the bed. Pennyroyal or oil of pennyroyal or the fumes of scorched insect powder have a similar effect.

Mosquito, Bee or Insect Bites.—Wash with a 4 per cent solution of cocaine. Other remedies are bicarbonate of soda, oil of cloves and ammonia.

Mustiness in Casks.—Burn a little sulphur in them and let stand a day.

Paste for Paper Hanging, Etc.—1 qt. water; ¾ oz. alum. Dissolve and add flour to the consistency of cream. Add hot water and boil a short time, stirring rapidly, until thin enough to spread easily, to keep several months add powdered resin and a few cloves while boiling.

Potatoes, to Preserve.—Sprinkle the floor with quicklime; make a layer of 5 inches deep of potatoes, then sprinkle again with lime. Repeat the operation, using 1 measure of lime to 40 of potatoes. This checks disease and improves the tubers.

Plaster Casts or Statuary, to Bronze.—Coat 2 or 3 times with shellac varnish; dry and apply a coat of mastic varnish. While sticky, dust on fine bronze powder of color selected. When dry, polish with chamois.

Polish for Shirt Fronts, Etc.—White wax, 1 oz.; spermaceti, 2 oz. Melt together with gentle heat. Boil starch in the usual way, add a piece of the above the size of a large pea for a dozen pieces.

To Remove Old Putty from Window Sashes.—Pass a red hot iron over it

Rocks, to Break Easily.—Drill the stone in direction of its veins, insert a cleft cylinder of iron, and drive a well greased wedge between the halves of the cylinder. Or kindle a hot fire on one side, and when the rock is heated dash cold water over it.

Rats, to Destroy or Drive Away.—Moist caustic potash laid where rats or mice frequent will soon drive them from the locality. It burns their feet and tongues beyond endurance. To attract them into a trap, use a few drops of oil of rhodium.

Rubber Goods, to Restore Elasticity.—When too brittle, immerse in 1 part ammonia and 2 parts water until the desired effect is obtained.

Rust, to Prevent on Stoves, Machinery or Tools, Etc.—Apply kerosene with a cloth. Boiled linseed oil is also an excellent preventive for rust on polished metals. Steel articles are kept bright by fresh burned lime, loose or in a bag, in the drawer where they are placed.

Dressing for Tan Shoes.—1 part wax; 4 parts oil of turpentine.

Soles of Shoes, Leather, Etc., to Waterproof and Harden.—Rub on Stockholm tar; or apply 3 coats copal varnish, first warming the soles to assist in absorption.

Sea Shells, to Color—Boil lac dye, and set to settle. Then dissolve in a solution of tin-chloride. Clean the shells and immerce in the dye until thev acquire the proper color.

Stumps, to Destroy.—In the fall bore a large hole, 18 inches deep, in the center of the stump, put in several ounces of saltpeter and fill with water. Plug it up, and in the spring take out the plug and fill the hole with petroleum and plug again. After a week or two ignite it. It is said that the stump will smoulder to the roots.

To Test the Soundness of a Log.—Apply the ear to one end and have the opposite end struck with an ax. If the blow is distinct the log is sound, otherwise not.

Stammering, to Cure.—Read an interesting book aloud slowly and distinctly two hours daily, with the teeth closed tightly together. Highly recommended.

SAILOR'S KNOTS, SPLICES, RIGGER'S TACKLE, ETC.

Figure of Eight Knot.—Pass the end of your rope around the standing part, under its own part, through the lower bight.

Two Half Hitches.—Pass the end of your rope around the standing part, and bring it up through the bight. This is one half hitch; two of these, one above the other, completes it.

Bowline Knot.—Take the end of the rope in the right hand and the standing part in the left, laying the end over the standing part; then with the left hand turn the bight of the standing part over it, lead the end around the standing part through the bight again. The bight turned in the standing part is often called a cuckolds neck.

Bowline on the Bight.—After making a bowline knot, take the bight over the large bight, bringing it up again, and it is complete.

Running Bowline.—Take the end of a rope around the standing part and through the bight; make the single bowline knot upon the part and it is done.

A Timber Hitch.—Take the end part of a rope around a spar or timberhead; lead it under and over the standing part; pass several turns around its own part and it is done.

A Sheet Bend.—Pass the end of a rope through the bight of another rope, then around both parts of the rope and down through its own bight. It is also called a Becket bend or a Weaver's Hitch.

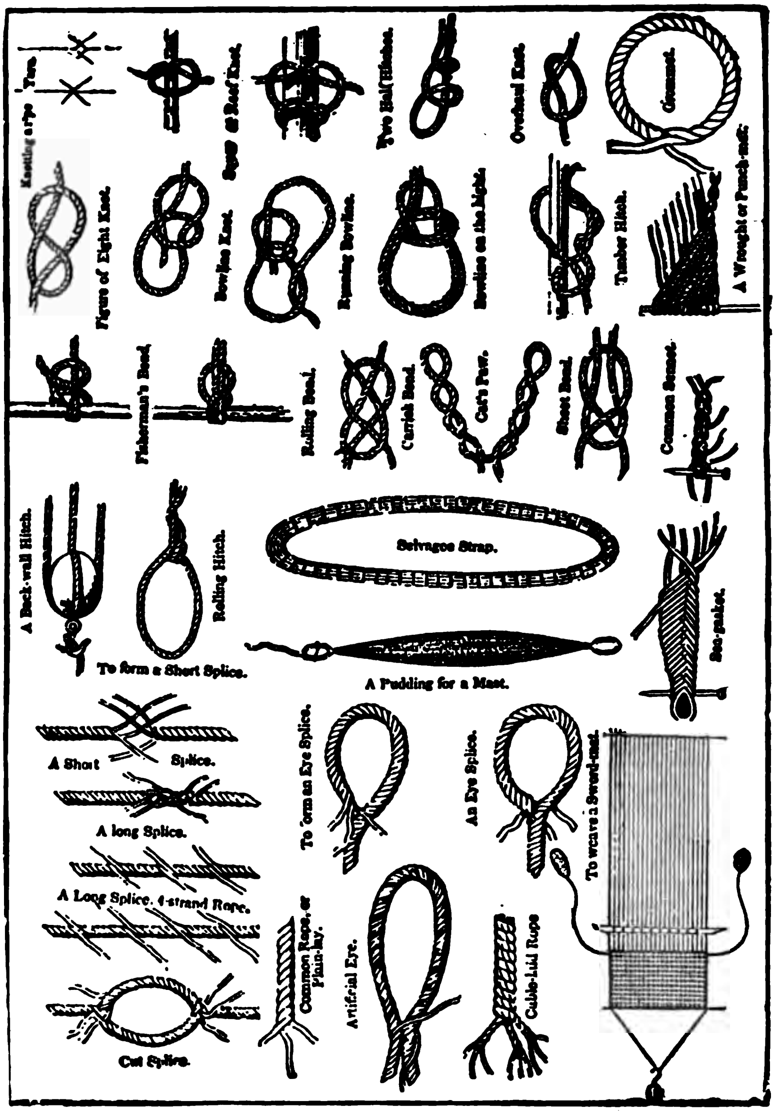
A Fisherman's Bend.—With the end of a rope take two round turns around a spar; take one half hitch around the standing parts, and under all parts of the turns, then one half hitch around the standing part above all and stop the end to the standing part.

Rolling Bend.—Take two round turns around a spar; two half hitches around the standing part and the end stopped back.

A Carrick Bend (used for joining hawsers together).—Take the end of the hawser and form a bight by laying the end part on the top of the standing part so as to form a cross; take the end of the other hawser and run it down through this bight up and over the cross; then pass the end down through the bight again on the opposite side from the other end; for one end must be on top and the other underneath, as seen in the plate. If both ends come out at the top it will be a "granny's knot."

A Catspaw.—This is generally used in the ends of lanyards to hook the tackle to in setting up rigging; to form it you first lay the end part across the standing part, which will form a bight; then lay hold of the bight with one hand on each side of it, breaking it down, turning is over from you two or three times; clap both bights together and hook onto both parts. (See plate.)

Rolling Hitch.—With the end of the rope take a half hitch around the standing part, then take another through the same bight, jamming it in above the first hitch and the upper part of


Knotting a rope Yarn.
Reef Knot.
Two Half Hitches.
Overhand Knot.
Grommet.
Figure of Eight Knot.
Bowline Knot.
Running Bowline.
Bowline on the Bight.
Timber Hitch.
A Wrought or Punch-mat.
Fisherman's Bend.
Rolling Bend.
Carrick Bend.
Cat's Paw.
Sheet Bend.
Common Seizing.
A Back-wall Hitch.
Rolling Hitch.
Selvagee Strap.
To form a Short Splice.
A Pudding for a Mast.
Sea-gasket.
A Short Splice.
A long Splice.
A Long Splice, 4-strand Rope.
Cut Splice.
To form an Eye Splice.
An Eye Splice.
To weave a Sword-mat.
Common Rope, or Plain-lay.
Artificial Eye.
Cable-laid Rope

Sailors' Knots and Riggers' Tackle.

the bight; then haul it taut and dog your end above the hitch, around the standing part; or you may take a half hitch around the standing part and stop the end back with a yarn.

A Short Splice.—Unlay the rope ends sufficiently and crutch them together as in the plate; grasp the lower rope and yarns around with the left hand or stop them temporarily with a yarn. Take an upper strand pass it over the strand next to it and stick it underneath the second strand, then haul it taut in the lay of the rope. Then stick the second and third ends in the same manner, hauling them all taut; then repeat the process with the lower rope. You can stick the ends twice or you can serve them after worming with a few of the underneath yarns and marling them down.

A Long Splice.—Unlay the ends of the rope sufficiently and crutch them as in a short slice. Unlay one strand for a considerable length and fill up the space with the opposite strand next to it; then turn the rope around and lay hold of the next strands that come opposite to their respective lays. Unlay and fill up as before with all the strands, cut off the extra lengths and it will appear as in the plate. To complete the splice split the strands equally in two, then take the two opposite half strands and knot them together so as to fill up the vacant lay; then you stick the ends twice under two strands with all six of the half strands, leaving the other six natural, then stretch the splice well, and it is completed.

To Put a Strand in a Rope, to replace a broken or weak strand. —Cut the strand and unlay it one or two feet each way; then take a perfect strand and inlay the vacancy in its place. Stick the ends as in a long splice.

To Wall and Crown.—Unlay the end of a rope; make a small bight with one strand; bring the second round the end of the first, the third round the second and up through the bight: pull taut; this is the wall. To crown it lay one strand over the end, the second over it and the third over the second and through the bight of the first.

An Eye Splice is made by opening the ends of the rope and laying the strands on the standing part. Divide the strands, putting one on top, one underneath, and stick the middle one under its respective strand, using a marline spike; put the next end over the first strand and under the second. The third and last end is taken through the third strand on the other side. Proceed till you have a strong splice.